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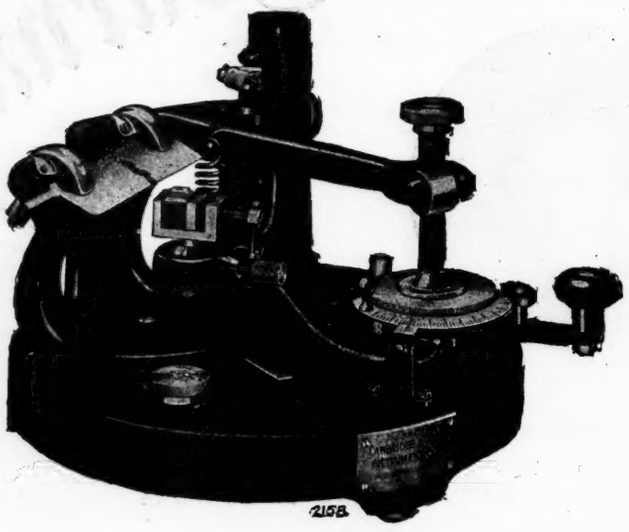

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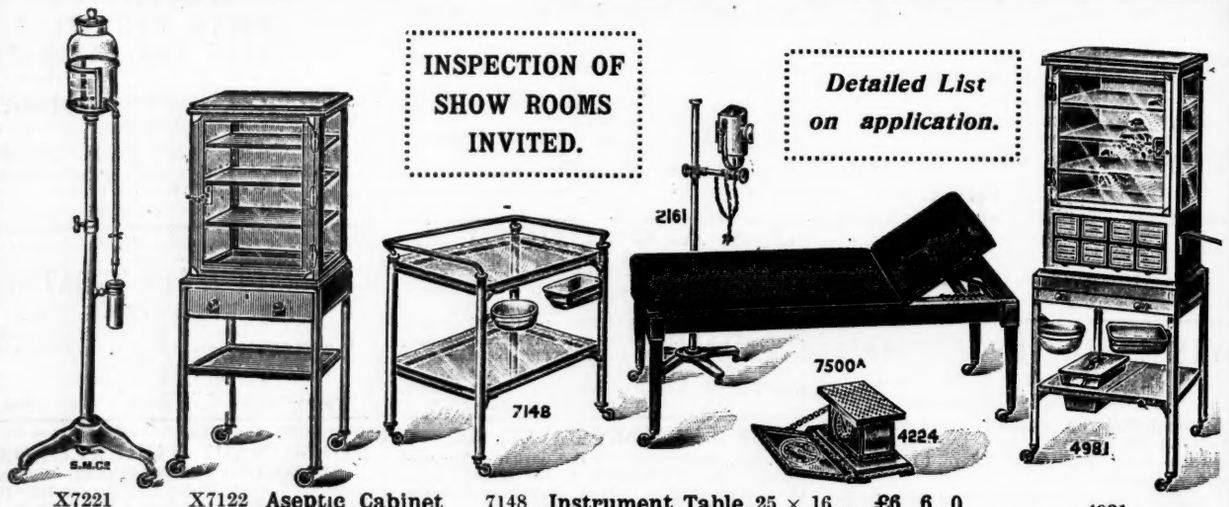

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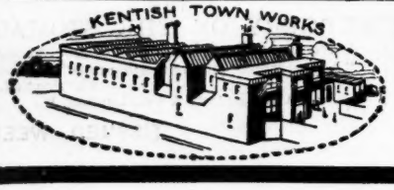

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An Address
ON
SOME ASPECTS OF THE ABDOMINAL EMERGENCIES OF CHILDHOOD.

DELIVERED TO THE FIFE MEDICAL ASSOCIATION, SEPTEMBER 23RD, 1921.

BY
JOHN FRASER, M.D., F.R.C.S.,
SURGEON TO THE ROYAL HOSPITAL FOR SICK CHILDREN, EDINBURGH.

THE responsibilities associated with the recognition and the treatment of acute abdominal conditions are at all times anxious and considerable; when one comes to deal with the abdominal emergencies of childhood the responsibilities are exaggerated, because the difficulties are increased.

The majority of my hearers are engaged in general practice; their duties are chiefly concerned with the recognition of these conditions, and therefore I propose to limit my remarks to questions of investigation and diagnosis.

First let me unburden my mind of this sentiment: I have the greatest sympathy with the general practitioner in his dealing with cases such as these, because I believe that his judgement is constantly liable to be biassed by two influences to which the hospital surgeon and the specialist are less likely to be exposed: (*a*) the influence of environment, (*b*) the influence of constant association with the case—"clinical staleness." Let me for a moment elaborate these two points, because I am convinced that they are important, and the more so as it is difficult to see any remedy which may counteract them.

The influence of environment must constantly make itself felt, and its various bearings are legion—the resistance and objection of the patient to an efficient examination, the attitude of parents, the adverse social conditions (only the other day a doctor in a Highland parish told me that the first intussusception he ever saw he examined in a gipsy's tent by the light of a heather fire). How very different, and, I confess, how much easier it is to arrive at a considered diagnosis when your patient lies in a hospital cot surrounded by the diagnostic aids with which science and mechanics have provided us. That is one reason why I sympathize with the general practitioner, and appreciation of the difficulties cultivates the best of all virtues—a humble spirit.

The second adverse influence I believe to be as important as the first, because its effect is insidious, and the appreciation of it therefore more difficult. I have termed it "clinical staleness," an inelegant term perhaps, but it expresses what I mean. Paget knew the danger of it, for you will find the remark in his *Letters:*

> "If I am in constant attendance on a difficult and doubtful case my endeavour is to approach it on each successive occasion as though it were an entirely new problem. I attempt to shake myself free from all previous impressions."

I am convinced that Paget was right, and it is in the doubtful abdominal emergency that the danger is greatest. You see the case and you examine it. You find it difficult to arrive at a definite decision regarding it. You see it again, and you pick up the thread where you left it. Doubt begins to enter your mind. You revise your impressions, but the diagnosis is more uncertain than before. This means delay, and in abdominal emergencies delay is always dangerous. Such is the process which I have crudely termed "clinical staleness." You now ask a consultant to see the case, and he quite readily supplies the diagnosis: it may be because of his greater clinical experience—he has seen similar cases before; it may be because he has made a more thorough examination than you have made; but I assure you in many cases it is because he approaches his subject with a fresh and unbiassed mind, while you have been in some degree the victim of "clinical staleness."

I have said that these two adverse influences are important, because it is difficult to see how they are to be combated. I know one or two simple rules which certainly minimize the danger of the second:

1. When you first see your patient, let your original investigation be as complete as it is possible for it to be.
2. Use the evidence which you have to furnish a diagnosis. I believe that even a wrong diagnosis is preferable to none.
3. If, in spite of your attempts at diagnosis, there is still doubt, err on the side of safety; and, where the diagnosis of acute abdominal conditions in children is concerned, safety will lie in surgical interference. I prefer to open an abdomen and find nothing wrong rather than to delay my diagnosis until surgical interference is too late.

But these are generalities, and I would speak of something more definite. I have expressed these sentiments, however, because I constantly feel that one sympathizes far too little with the difficulties which the man in a busy general practice has to meet and overcome.

TWO ASPECTS OF THE ACUTE ABDOMEN IN CHILDREN.

If you view the subject from a certain aspect the abdominal diagnosis in children is easier than a similar problem in adults, while from another point of view it is certainly more difficult. Let us consider for a moment the factors which affect the problem and either simplify or complicate it.

1. *Simplifying Factors.*

(*a*) *Limited Origin.*—One of the most comforting features in the investigation of the acute abdomen of the child is the knowledge that the pathological conditions which produce the emergency are comparatively few in number. It is obvious that large and difficult groups may be left entirely out of consideration. I may put the matter more concisely by saying that in children emergency surgery of the upper abdomen and of the pelvis is exceedingly uncommon. There are exceptions, of course, but they are rare. In other words, the surgical emergencies of childhood are localized to the large and the small intestines. This fact when realized is constantly of value in the diagnosis of a difficult case.

I have said that there are exceptions to the rule, and it is interesting to notice that the exceptions are examples of congenital errors in development, and therefore become apparent in the first few days or weeks of life. The emergencies of the upper abdomen are congenital obliteration of the duodenum, congenital obliteration of the bile ducts, and congenital stenosis of the pylorus. The inclusion of the last condition as an emergency may be criticized, and of course it does not rank as an acute one, but I believe that it should be included, for I am convinced that when the condition is recognized, early operation offers the best prospect of cure. In the pelvis, imperforate anus in any of its varieties constitutes the common emergency.

This is the first point which I would make—the limitation, with the exceptions which I have stated, of abdominal emergencies to the distribution of the small and large intestines.

(*b*) *Limited Pathology.*—The second simplifying feature is the recognition that one can practically exclude the malignant conditions and the various chronic ulcerative diseases, both of which are fertile in the production of adult abdominal emergencies, but both of which are practically negligible in the abdominal surgery of the child.

(*c*) *The Psychological Factor.* — The third simplifying feature is of a psychological nature. Children are largely free from the mental and nervous conditions which in the adult so often lead to the exaggeration of abdominal complaints, or even to the creation of phantom signs and symptoms. If the child is old enough to describe his sensations his description is generally correct. An experienced clinical observer, whose knowledge of the surgery of children is based on twenty-one years' work in a children's hospital, has repeatedly told me that, when investigating a possible case of appendicitis in a child he attaches the main importance to the single instruction, "Point to the place where you have the pain." He very rarely has reason to question the diagnosis which the child himself really makes.

There are other simplifying features, but I have mentioned the most important. This is the bright side of the picture; there is another, however—the difficulties which beset the diagnosis. I shall mention these in less detail.

2. *Complicating Features.*

(*a*) *Difficulties of Examination.*—In young children there is difficulty in obtaining a subjective history. Such a deficiency may often be supplied by the parents, more especially by the mother, and while the maternal instinct often makes a mother a shrewd clinical observer, we have to exercise discretion in the degree of value we attach to the story. There is further the difficulty which exists in obtaining the confidence of the child to such a degree as to permit of an efficient examination. A certain amount of tact in dealing with older children generally overcomes this obstacle—the spoilt child is the type which is embarrassing. Where young children are concerned, and such a question as that

of an abdominal tumour (intussusception) falls to be considered, there should be no hesitation in producing light anaesthesia, merely sufficient to induce relaxation of the abdominal musculature. Many mistakes will be avoided if this plan is followed. I use the method of light anaesthesia in the investigation of inflammatory abdominal conditions also. There is a type of child it is impossible to comfort, who resists with all the musculature at its command the slightest attempt at examination. A few drops of chloroform induce a light slumberous condition, but the stupor is so superficial that local muscular rigidity can be detected, and the information so obtained is infinitely more reliable than the erratic manifestations of a struggling child. I would, of course, remind you of the importance of the fact that to ensure the desired effect the anaesthesia, if I may so call it, must be of the lightest possible description.

(*b*) *Rapid Progress of the Disease.*—The time factor is worthy of closer attention in children than in adults; certain of the acute conditions may progress with great rapidity in the child, such as intussusception, acute appendicitis, and intestinal obstruction. Resistance has not yet reached the stage which it does in the adult body, and the sudden flooding of the child's system with powerful toxins may rapidly lead to a fatal termination. The lesson is specially impressed upon one in dealing with acute intestinal obstruction, where, after a certain stage is reached, and that quickly, there is an extremely rapid collapse.

But these questions are, after all, of general interest, and it would seem as though I had difficulty in getting down to the more essential details of the discussion. Let me therefore tabulate the common clinical conditions which we may group together as constituting the "acute abdominal emergencies of childhood."

A. Acute appendicitis.
B. Pneumococcal peritonitis.
C. Intussusception.
D. Acute intestinal obstruction.
E. Volvulus.
F. Strangulated hernia.

They are not numerous, and you will observe the truth of the statement that they are localized to the distribution of the large and small intestines. I propose to deal with each of them in turn, not in any detail, but rather with the question of diagnosis continually before us, and to bring out one or two points of special interest in regard to each.

A. Acute Appendicitis.

I have no intention of announcing to you the well-known features of the ailment. In the comparatively short time which has elapsed since it was first described it has probably received wider literary notice than any other surgical condition, but I would ask you to consider one or two aspects of the disease which have not always received the attention they merit.

1. *There is no Age Limit of the Disease.*

In my comparatively short experience I have seen five cases of acute appendicitis occurring in breast-fed babies at relative periods of four, six, six and a half, seven, and nine months, and the pity of it is that in every one of these cases the condition was recognized too late to save life. In every case the same erroneous observation had been made, "It cannot be appendicitis; the child is too young." For one of these mistakes I must assume personal responsibility, but it taught me a painful lesson, and I am anxious that others should not fall into a similar error. There is this comforting side to the age question, that owing to the comparatively small amount of appendicular lymphoid tissue which is present in the early months of life the disease does not assume the fulminating character which it may do in the older child. The greater reason therefore that it should be efficiently treated in the time which is available.

2. *The Relation between Appendicitis and the Bilious Attacks of Childhood.*

My surgical suspicions are always aroused when I am told that a child has been constantly subject to bilious attacks. My suspicions fall upon the appendix. As the appendix may be responsible for the appendicular dyspepsia of the adult, so it is often the feature at fault in the child. In the latter, however, the irritability of the juvenile mucosa is reflected in vomiting, while in the former the evidences are more chronic; possibly, too, an imperfect association of the sympathetic nervous system of the child may play a part. The essential point is the realization of the fact that repeated attacks of sickness in a child should at once suggest that close attention be paid to the condition of the appendix. If this is neglected, a severe perforating attack may be the result, with all its dangerous and unpleasant accompaniments; if an acute attack should not develop, the digestive system, and, in fact, the general health, becomes weakened and debilitated.

3. *The Order of the Occurrence of Symptoms in Appendicitis.*

It is largely due to the work of Murphy that the significance of the sequence of signs and symptoms has been realized. He classed the features in the following order as regards the time of their appearance:

(*a*) Pain—epigastric, umbilical, sometimes general.
(*b*) Nausea or vomiting.
(*c*) Local iliac tenderness.
(*d*) Fever.

The features occur almost without exception in the above order, and when the order varies doubt may justifiably be entertained as to whether the condition is actually one of appendicitis. A recognition therefore of the relative time occurrence of the various features is an important factor in arriving at the diagnosis.

It is interesting to note the explanation of the various features. They are, of course, perfectly well known to you, but I would refresh our memories on the point.

The causes of the early pain (and you will remember that it is referred to the umbilicus or epigastrium) are two—exaggerated peristalsis of the appendix and painful contraction of the caecum. Obstructive types of appendicitis—such, for example, as are associated with concretions—are accompanied by severe referred pain, because in these cases the peristalsis is especially well marked. It has been said (though I cannot vouch for the accuracy of the statement) that in these obstructive varieties the early pain is epigastric in position.

The second feature is the vomiting, and you will notice that it appears subsequent to the early pain. It is reflex in origin, the result of an antiperistaltic wave in the stomach and the emptying of that viscus. There are two points in regard to the vomiting to which I would allude. Though in adults it may be absent, in which case its place is taken by nausea, in children vomiting occurs almost without exception. The second point is that, if vomiting is especially severe, it means a distension of the appendix with contents, and in all likelihood early perforation of the organ.

Local iliac pain and tenderness is third in the order of sequence, and its comparatively late appearance has two explanations: at first it tends to be masked by the more generalized pains, and its full degree is not appreciated until the overlying peritoneum becomes irritated and inflamed. Accompanying the local tenderness there is muscular rigidity. The closer the appendix lies to the parietal peritoneum the more marked is the rigidity, and the distribution of the muscular rigidity is generally an indication of the position of the appendix. The last point is well illustrated in such a condition as retrocaecal appendicitis, when rigidity of the anterior muscles is slight or even absent, while the contraction can be made out in the muscles of the loin.

In connexion with the occurrence of fever, its appearance is comparatively late, because its development denotes an actual bacterial infection and the absorption of toxic products.

4. *The Variation of Signs and Symptoms According to the Position of the Appendix.*

I refer to this point because we sometimes forget how striking may be the variations in symptomatology dependent on the situation of the appendix.

The Pelvic Appendix.—If the appendix is dependent and lies low within the pelvis abdominal symptoms may be comparatively few. There are three features, however, one or all of which may be present—suprapubic tenderness, frequency with pain on micturition, and diarrhoea. The last two symptoms depend upon the proximity of the inflamed appendix to either the bladder or rectum. In all cases of pelvic appendicitis rectal examination shows severe local tenderness. I would allude to another feature sometimes present in pelvic appendicitis—the so-called "obturator test." If an inflamed pelvic appendix lies in relation to the obturator internus muscle it produces rigidity of that muscle, and the rigidity is demonstrated by the inability to rotate

the flexed thigh inwards and by the pain which is produced within the pelvis when the movement is attempted.

The Retrocaecal Appendix.—If the appendix lies in a retrocaecal position there may be very real difficulty in the interrogation of the symptoms. The situation is altered by the deep position of the appendix, and by the fact that in some of these cases it is actually an extraperitoneal organ. I should say that the distinctive points of a retrocaecal appendicitis are the comparative slightness of the symptoms in the early stages, the possible absence of vomiting (and this is one of the few instances in children in which appendicitis may be unaccompanied by vomiting), and the tenderness and rigidity of the loin. There is one evidence of retrocaecal appendicitis which, in my experience, is practically constant, and to which I believe insufficient attention has been paid. When the inflammation of the appendix causes oedema of any contiguous part of the abdominal parietes (posterior, anterior, or lateral), muscular rigidity invariably appears. In retrocaecal appendicitis rigidity of the psoas and iliacus muscles results, and this rigidity may be demonstrated by attempting to extend the right thigh while the patient lies on the left side.

The Mesenteric Appendix.—A third situation which may be accompanied by distinctive signs arises when the appendix lies in relation to the lower end of the ileum. It most frequently occupies a position behind the bowel and beneath the mesentery. Three or four features suggest this position of the appendix—umbilical pain with marked central muscular rigidity, early and persistent vomiting, severe small intestine colic, and early abdominal distension. These distinctive features exist because this variety of appendix is so apt to be accompanied by early small intestine semi-obstructive symptoms.

The High or Hepatic Appendix.—Finally, we may have distinctive signs in that variety of appendicitis which occurs with an undescended caecum. It is really a congenital abnormality in so far as the caecum retains a high position beneath the liver, while the appendix is foetal and terminal in type. This variety may be most disconcerting, because in its local features it simulates so exactly a basal pneumonia or a diaphragmatic pleurisy. I shall have occasion to allude to it again when I speak of the question of diagnosis.

5. *The Differential Diagnosis of Appendicitis in Children.*

Let me remind you that in any problem of diagnosis two questions fall to be discussed, and these arise in appendicitis in common with other conditions. There is the actual diagnosis—I know by certain signs and symptoms which the case presents that this is an example of appendicitis. But there is the problem of differential diagnosis. What are the conditions which resemble appendicitis, and how am I able to exclude the possibility that I am dealing with one of these conditions?

I have nothing to say in regard to the question of the actual diagnosis of appendicitis; you are as familiar with the problem as I am. I would remind you of the importance of noting the order of appearance of symptoms, and of the variability of local signs according to the position of the appendix. But I would tell you something regarding the differential diagnosis in children. It may be that it is a record of error, but one's mistakes are among the most valuable lessons if we only possess the wit to benefit by them.

The subject may be said to resolve itself into the question, What are the conditions in children which we are liable to mistake for appendicitis? I have said that this may be considered a record of error, and I confess that I have made most of the possible mistakes I record, but to know the possibilities of misdiagnosis is a step towards their avoidance in future. Let me record the possible errors one by one.

(*a*) *Acute Pyelitis.*—This condition is a fruitful source of confusion. Your attention is directed to a female child—and note the sex! A history is obtained of indefinite abdominal pain, of high temperature, of vomiting and constipation, of marked general disturbance, and frequently of rigors. On examination one is struck with how ill the child appears to be, and there is a degree of general irritability which is typical of the disease. Abdominal examination reveals local tenderness, with a certain degree of muscular rigidity. In certain respects the case resembles one of acute appendicitis, but it is really an example of acute pyelitis. The main safeguard against error is the examination of the urine, and, of course, such an examination should be a matter of routine in every abdominal case. It is possible that such an examination is forced upon you by the occurrence of dysuria and frequency of micturition, but in many cases these regional signs are absent. The urine is opalescent and acid, a deposit is slow to form, albumin is present, but slight in amount, and if microscopical examination is made of a drop from the middle of the specimen—not from the deposit, and this is an important detail—pus cells and colon bacilli are found to be present.

But, apart from the characteristic condition of the urine, certain points should arouse suspicion—the female sex (in 75 per cent. of cases); the early and high temperature, remittent in type; the marked degree of illness in the absence of severe local signs; the irritability, which is not in keeping with the apparent prostration; the situation of the abdominal tenderness (it is over the pelvis of the kidney and much less marked in degree than the features of acute appendicitis); finally, the order of appearance of symptoms differing from that of appendicitis. Of course there is a great deal more in the differential diagnosis than I have stated, but perhaps I have said sufficient to draw your attention to the possibility of the error. It is a disconcerting mistake to make because pyelitis yields so readily to alkalinization of the urine.

There are two minor points I would recall to you, and I have finished with the question. Remember that the symptoms may have lasted for a few days before pus appears in the urine, though colon bacilli are present from the beginning, also that in a unilateral case which has existed for a few days pus may disappear from the urine because the ureter has become blocked.

(*b*) *Cyclic Vomiting.*—I have put this condition second because it is a frequent source of error, but more especially because it is so important that the error should not occur, operative interference and the administration of an anaesthetic being extremely detrimental to the condition—in fact, they may be the deciding factors in a fatal termination. A child becomes pale, irritable, and tired-looking, and complains of indefinite pain, which is often localized to the pit of the stomach; there has been a preceding period of constipation and flatulence. Then, and often with extreme suddenness, vomiting appears, and it is most distressing in its frequency and severity. The error in diagnosis is most likely to occur if one first sees the child during the maximum period of the attack. The child looks drowsy and exceedingly ill, the abdomen is retracted, and from the persistent retching and vomiting it may be tender and even slightly rigid to the touch. It is then that the error may arise, but it should not. Similar attacks may put one on one's guard. There is an absence of localizing abdominal signs, the breath shows the characteristic odour of acetone, the appearance of the child suggests intense illness without any definite explanatory feature, the urine (and again there is illustrated the importance of routine examination) shows the presence of acetone, together with casts and small quantities of albumin and blood. It is possible that some of you may question the likelihood of this condition being confused with appendicitis, but I assure you the error does arise, and in many cases the dissimilarity between the two conditions is not so marked as you may imagine.

(*c*) *Ileo-caecal Lymphadenitis.*—Some nine years ago, when interested in certain aspects of glandular tuberculosis, I drew attention to a condition of the abdominal glands which may closely simulate lesions of the abdominal viscera. The condition is most characteristically seen in the ileo-caecal region. The sequence appears to be that the glands become the subject of tuberculosis; as a result, the bacteria-resisting properties are diminished, and from time to time there are attacks of subacute lymphadenitis, which no doubt arise from an intestinal absorption with which the gland is now incapable of efficiently dealing. The pathological process is comparatively common in children, and when it occurs it may simulate very closely an attack of appendicitis. The characteristic points in the history are as follows: There is frequently a preceding attack of diarrhoea or intestinal disturbance, and the association of this is important, because the resulting alteration of the intestinal flora is possibly the exciting feature of the process. Severe abdominal pain appears—there may be vomiting, though such is by no means constant, there is considerable general disturbance and fever. The symptoms rarely last for more than twenty-four to forty-eight hours, when they abate with characteristic suddenness. How is one to distinguish such a case-history from that of appendicitis? I confess it is often exceedingly

difficult—sometimes it is impossible. One or two features may be suggestive.

In lymphadenitis the pain is local from its commencement—it is never referred. This is a point, however, which in young children it may be impossible to verify. The tongue usually remains clean, the attack subsides with characteristic rapidity; fever introduces the illness, while in appendicitis temperature is comparatively late in its appearance. It may be possible to palpate the enlarged tender glands.

But I fully realize that the points I have mentioned, while difficult to verify, are capable of considerable variation, and, if your experience tallies with mine, the diagnosis of the great majority of these cases will be made after they have been operated on for what was considered to be acute appendicitis. In view of the danger in children of the "wait and see" policy where appendicitis is concerned, it is better that things should be so.

(*d*) *Basal Pleuropneumonia and Diaphragmatic Pleurisy.*—If an inflamed appendix occupies an abnormally high position, such, for example, as is associated with an undescended caecum, difficulty may arise in distinguishing this variety of appendicitis from the acute pulmonary conditions which involve the base of the lung and the upper surface of the diaphragm. There are the commonly quoted distinguishing points, that in pleuropneumonic conditions the initial temperature is high (103° to 105°), the respiration pulse ratio is increased, the alae nasi are working vigorously. But distinct from these and apart from peculiarities of onset and history, there are two tests which we find of considerable value in doubtful cases. The first is that of "opposite side palpation"—the hand is pressed firmly into the left side of the abdomen. If the origin of the pain is abdominal an accentuation is referred to the site of the infection; if, on the other hand, the pain is thoracic no alteration is produced by the left-sided pressure.

The second test is of great value, though I confess it may be difficult to demonstrate in young children. It is sometimes called the "collar test," and it has a developmental basis. The diaphragm develops in the region of the fourth cervical segment, its musculature is derived from this segment, and its nerve supply (the phrenic) is also derived from the segmental nerve (the fourth cervical). In later development the growth of the thoracic contents displaces the muscle caudalwards, and it ultimately takes up its position at the thoracico-abdominal junction. Its connexion with the higher segment, however, is extremely valuable from the diagnostic point of view, for any irritation of the diaphragm is referred along the distribution of the fourth cervical nerve, and an area of hypersensibility can be marked out which is, roughly, of a collar shape—hence the name given to the sign. In high appendicular infections the collar sign is absent, while in pleuropneumonic conditions it is present, though its demonstration in children may be difficult. It is well to remember that, if the high appendicular infection extends to such a degree as to involve the diaphragm, the collar sign will then become positive.

Of course there are many other conditions which may complicate the diagnosis of appendicitis in children, but I have mentioned these four because in my experience they are the most common sources of error.

B. Pneumococcal Peritonitis.

It is a matter for regret that so little is known regarding the etiological pathology of this condition. It is the most fatal and acute of all the abdominal emergencies of childhood; I have seen death occur within twenty-four hours of the onset of the illness. We meet with the disease under two conditions—there is a primary variety, in which, so far as we know, the original manifestations of the disease are abdominal, and there is a secondary type in which a pneumococcal infection previously existed in some portion of the body, most commonly in the chest, the abdominal manifestations in this instance being secondary.

It is the primary type which is of such special interest. This variety is apparently limited to the female sex, and it is believed that the path of infection is through the vagina and the Fallopian tubes. Such a route would explain many distinctive features of the disease—the sex association, the commencement of the condition as a pelvic peritonitis, the age period, and the occurrence of the infection among the less hygienic classes of society. The last two points require a word of explanation. The age of election at which the disease occurs is five years. It has been suggested that it is at this age that the genitalia becomes sufficiently patent to admit the infection. The further suggestion has been offered that at this period an alteration takes place in the vaginal secretion, its reaction altering from acid to alkaline, and so permitting bacterial infection. The relationship of the disease to unhygienic surroundings is beyond question. I believe it will be universally acknowledged that the condition is only met with in hospital practice, and it impresses one with the importance of insisting upon the most careful hygiene of the genitalia of the female child.

The clinical features of the disease are characteristic, and the appearance of an acute case leaves a lasting impression. The following actual history is typical of many.

A healthy female child, aged 6, partook of a hearty breakfast, and at 10 a.m. was playing with her companions. At 10.30 she returned home complaining of intense abdominal pain.

Throughout the morning hours she was repeatedly and violently sick, and there were several attacks of diarrhoea. During the afternoon her condition became aggravated in that she was more seriously ill, though the pain and sickness abated and the diarrhoea ceased. She became delirious, and when she was admitted to hospital the following morning, within twenty-four hours of the onset of the illness, she was practically moribund. She died at 11 a.m. on the second day of her illness.

Fortunately all cases do not demonstrate such a degree of intensity, but the quotation illustrates the ravages of which the disease is capable.

There would appear to be a definite sequence in the disease—the invasion of the pelvic peritoneum with a virulent strain of pneumococci, the rapid development of a pelvic peritonitis; diarrhoea and pain on micturition are direct evidences of such. From this point the course of the disease varies. In cases of intense infection and low resistance the peritonitis becomes general, septicaemia quickly supervenes, and it is the last feature which produces such a rapidly fatal issue. In a more promising type of case the infection is limited to the pelvis, the more acute characters of the disease subside, and the case acquires the features of a pelvic abscess.

To distinguish such cases from other examples of general peritonitis may be a matter of difficulty. In the early stages, an acute pelvic peritonitis in a female child, accompanied by diarrhoea and intense general disturbance, should suggest a primary pneumococcal peritonitis. In the later stages of the more acute type the appearance of the septicaemia overshadows the local abdominal signs. There is a slight cyanosis, the alae nasi work vigorously, there is delirium, with intervals of unconsciousness.

I have purposely avoided any reference to treatment in discussing these conditions, but I would say that early operation affords the only prospect of recovery in the great majority of cases. It is necessary to establish drainage, and this should be done with the utmost rapidity under gas and oxygen anaesthesia.

During the later stages of the disease we are beginning to have encouraging results from the use of blood transfusion.

C. Intussusception.

You are all perfectly familiar with the symptoms and physical signs of this condition—the colic, the appearance of blood and mucus from the rectum, the formation of a mobile abdominal tumour. But there are several features of interest which do not generally find their way into textbooks.

Two potential features govern the occurrence of intussusception—a local point of irritation within the bowel (generally the lower end of the ileum) and abnormal laxity of the colon attachment.

The question of irritation is interesting. If you consult the records of the Children's Hospital you will find that a large percentage of the cases of intussusception originate during the week end, and the explanation appears to be as follows: the father receives his weekly wages on Friday, some special dainties are secured in which baby unwisely shares, and, before the week-end has elapsed, the infant has had every opportunity of developing intussusception. This, further, is the explanation of the fact that the disease affects the children of the poor. During the nine years of my association with the Children's Hospital in Edinburgh over 300 cases of intussusception have been under treatment, and in this period I have only met with five cases in private practice. In respect of feeding, therefore, it is to some extent a preventable disease.

The other etiological point is in regard to the abnormal laxity of the colon attachment. I often remark to students that the intussusception of to-day is the neurasthenic

visceroptotic of to-morrow. There are these two points of interest in regard to the etiology of the disease.

Of the various pathological varieties the one which we most dread is the ileo-colic. In this type the ileum is projected through the ileo-caecal opening, and the tension of the orifice, together with the thickness of the small intestine mesentery, leads to earlier gangrene than in the other varieties. The colic variety is the most promising, because it is at first incomplete in so far as the obstruction of the bowel is concerned.

The Diagnosis of Intussusception.

As a rule the diagnosis of intussusception is easy, but there are two pitfalls to which I would direct your attention. The first is in regard to the question of the passage of blood and mucus. We attach great importance to the presence of blood and mucus in the bowel, and I would remind you that in the enteric or small intestine intussusception, which later becomes the ileo-colic, blood may not appear until late in the history of the disease, if indeed it appears at all. The explanation of this peculiarity is that the irritation of the enteric intussusception produces a closure of the ileo-caecal valve, and the closure leads to a retention of the blood. The second pitfall occurs in the colic variety. In this type the disease is chronic, it may last for weeks, and during that time the obstruction is incomplete, while the extravasation of blood is small. Thus in this variety the bowel may appear to move with a loose blood-stained motion, though a large intussusception is present.

Regarding the question of the differential diagnosis, there should be little difficulty in the distinction from acute enteritis and rectal prolapse. In acute enteritis the absence of a tumour, the absence of persistent vomiting, and the occasional presence of blood in a liquid stool is sufficient to characterize the condition. In prolapse of the rectum the question is purely one of careful examination.

But in distinguishing intussusception from abdominal or Henoch's purpura the problem is a much more difficult one. A surgeon of extensive experience once told me that on five occasions he had failed in his diagnosis regarding possible intussusceptions. On four occasions he had opened the abdomen to find that a Henoch's purpura was the cause of the symptoms; on the fifth occasion operation was negatived under the impression that it was purpura, but, as events showed, it turned out to be an intussusception. Often, I assure you, it is no easy matter to come to a decision. If I may be allowed to trouble you for a moment with a personal reminiscence—one of the first emergencies with which I had to deal in the Children's Hospital was an example of Henoch's purpura. It was a regrettable experience, and it taught me a lesson which I have never forgotten.

A boy of 7 was admitted with signs and symptoms suggestive of intussusception—intermittent attacks of colic, vomiting, the presence of a tender tumour in the left iliac fossa obviously in relation to the colon, the appearance of blood and mucus from the bowel. I did not notice a faint purpuric eruption, and to this day I have regretted that want of observation. Laparotomy was done, and it revealed a local haemorrhagic infiltration at the junction of the iliac and pelvic colons. Surgical operation under such conditions is, of course, nothing short of a disaster.

Suspicions of Henoch's purpura should be entertained in older children (and more especially boys) when the abdominal colic is indefinite, when no true obstruction exists, when there is an indefinite abdominal tumour, which, however, is fixed and tender, above all when a scanty purpuric eruption appears in the skin, or haemarthrosis is present, and when rectal examination shows the characteristic oedematous sensation of an infiltrated mucosa.

D. Acute Intestinal Obstruction.

This subject is too extensive to deal with in a paper of this description. I would remind you that in children the great majority of these cases, apart from intussusception, have abdominal tuberculous disease as their origin.

In the child the first sign of obstruction should entail the serious consideration of early surgical intervention. It is very undesirable to wait until the obstruction becomes acute. Children stand acute obstruction very badly, but if operation be carried out during the chronic or even the subacute stage, brilliant results may be obtained. Some variety of exclusion operation may then be done, and all the disadvantages of enterostomy, so fatal to children, may be avoided.

There should be little doubt in the diagnosis of intestinal obstruction, though on several occasions I have seen difficulty arise in distinguishing acute obstruction from cyclic vomiting. From your point of view the impression I most desire to make is that where children are concerned the large majority become obstructed because of abdominal tuberculosis. It will be exceptional for the obstruction to be acute from the beginning—weeks, possibly months, will elapse during which the signs will be those of a chronic obstruction, and this is the period during which surgical assistance should be enlisted, because at this period operation offers excellent results. Do not delay until the condition becomes acute.

E. Volvulus.

The volvulus of children differs from that of adults in so far as it is ileo-caecal in type; in adults, as you will remember, it is most commonly the sigmoid colon which is affected. To some extent it may be claimed that the disease in children has a congenital origin, for the condition cannot very well occur unless the colon has a long and loose attachment. It is interesting that in children both volvulus and intussusception should have a close etiological relationship to a loose mesocolic attachment of the ascending colon.

The method by which the volvulus is actually produced must remain a matter of surmise. The suggestion has been put forward that there is a preceding period of constipation. The first step in the formation of the volvulus is said to be due to some sudden movement, as turning quickly in bed or playing with other children. When the torsion has been established it is accentuated by the violent peristalsis which invariably results. In the child volvulus gives rise to the most acute and distressing symptoms. The pain is intense, the sickness is early and urgent, collapse quickly appears, and in the absence of operative interference a fatal issue rapidly supervenes.

F. Strangulated Inguinal Hernia.

Where children are concerned this title is a misnomer. By using the term "strangulation" we mean an interference with the blood supply of the herniated tissues, and it is remarkable that this is an exceedingly rare event in the clinical history of the hernia of the child. I have looked over the records of 3,000 cases of inguinal hernia which have been under treatment in the Edinburgh Children's Hospital, and among such a large number there has been no instance of strangulation as we find it in the adult. Many of the cases have been irreducible, but even in those which have been irreducible for several days strangulation had not resulted. In one instance there were two small devitalized patches on the wall of the bowel at the level at which the external ring exerted pressure, but local invagination was sufficient to deal with the condition.

This clinical detail should give you considerable comfort but I do not bring it forward with the suggestion that it should induce you to delay operation in these cases. If a hernia is irreducible, the sooner it is operated on the better; but, if your position is such that operation is impossible, you may delay with an infinitely greater sense of security than would be the case where adults are concerned.

Conclusion.

As I said at the beginning, I have made no attempt to deal exhaustively with the features of the acute abdomen of childhood; such a subject is too vast to be covered in a single lecture. I have tried instead to present to you certain aspects of the problem which may be of interest to the general practitioner. My purpose will have been served if I have been able to make any easier for you a problem which must always be an anxious and a difficult one.

THE papers set at the third M.B., B.S. examination of the University of London, held last October, have been printed and can be obtained from the University of London Press, 17, Warwick Square, E.C.4, price 1s., postage 1d. extra.

THE Fuel Research Board is instituting a systematic investigation of coal seams at present being worked or developed, with the view of ascertaining the suitability of each particular coal for those purposes for which its individual qualities render it most adequate—gas making, coke making, steam raising, or for domestic use. It has recently recognized the Lancashire and Cheshire Coal Research Association as its representative body in those districts.

FATS IN RELATION TO THE GENESIS OF GOITRE.*

BY

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IN a paper published in the *Indian Journal of Medical Research* in January, 1920, I drew attention to the effect of a diet containing an excess of butter in favouring the development of thyroid hyperplasia of the Graves's disease type. The experiment which led to this observation was carried out at Coonoor, Nilgiri Hills, Madras—6,000 ft. above sea-level—where goitre is practically unknown. It was made on pigeons and lasted 248 to 250 days, at the end of which period the birds that had survived were killed; several had died in consequence of maltreatment by their fellows.

EXPERIMENT.

1. Eighteen semi-wild pigeons were confined in a large netted wire cage, 5 ft. by 3 ft. by 2 ft. They were fed on a mixture of grains consisting of white millet seeds 12 oz., small dark millet seeds—known in India as *ragi*—8 oz., and split peas, of the variety known in that country as *mungdal*, 8 oz.; 3 oz. of fresh butter were intimately mixed by hand with the grains. The birds received this mixture daily. No sand nor grit was provided.

2. Eighteen other semi-wild pigeons were similarly confined and fed on the same mixture of seeds and butter, but with the addition to it of a daily allowance of 6½ oz. of freshly chopped onions. These also received neither sand nor grit.

3. Forty-two pigeons similarly confined and fed on millet seeds only, without the addition of butter, onions, or sand, acted as controls to the experiment.

In all three cases water was supplied in shallow troughs suspended a few inches above the bottoms of the cages.

Results.

1. The average weight of the thyroids per kilogram of body weight was 82 mg. in control birds receiving mixed millet seed only; in those which received mixed grains with butter and onions it was 128 mg.; and in those which received mixed grains with butter only, 183 mg.

2. Of fifteen pigeons which received *butter and onions* the weight of both thyroids exceeded the maximum weight in controls in five cases. Goitre was present in 33⅓ per cent. and absent in 66⅔ per cent. of cases.

3. Of seventeen pigeons which received *butter without onions* the weight of both thyroids exceeded the maximum weight in controls in eleven cases. Goitre was present in 65 per cent. and absent in 35 per cent. of cases.

4. On histological examination the enlarged thyroids of pigeons that received *butter and onions* presented a picture showing moderate congestion with the formation of many new acini whose epithelium did not exceed in height, or but slightly, that of the normal actively secreting gland. There was slight tendency to acinar budding. Colloid was comparatively scanty, thin, and pale-staining. Multiplication of acini was the essential feature of this type.

5. On histological examination the enlarged thyroids of pigeons that received *butter without onions* presented a picture showing little or no colloid, increase in height of the acinar epithelium, pronounced vesicular budding, irregularity in shape of the acini and plications of their walls—a picture similar to that characteristic of Graves's disease. Hypertrophy of acinar epithelium was the essential feature of this type of goitre.

The excessive richness of the food in butter was in this experiment a determining factor in the production of the thyroid hyperplasia and of the pronounced acinar budding.

A not less noteworthy result was the protective influence exerted by the onions. The addition of this vegetable to the diet of mixed grains and butter tended to lower the incidence of goitre, to reduce the average size of the thyroid enlargement, to restrain the intensity of the hyperplasia and the tendency to acinar budding, and to alter the character of the histological picture from an epithelial hypertrophy to a multiplication of acini without notable hypertrophy of their epithelial lining.

Variations in the histological types of goitre may thus be brought about by variations in the components of a goitre-inducing food.

The incidence of goitre in pigeons fed on mixed grains and butter, but without onions, was 65 per cent.; in the remaining 35 per cent. there was no goitre; and judged by two samples taken from this minority there was no appreciable departure of the thyroid gland from normal. The cases that did not develop thyroid hyperplasia have a significance second only in importance to those that did. They suggest that the excess of butter was not in itself the cause of the goitre, but that it was made a potent contributing or determining cause by the operation of some other factor or factors. My previous work had indicated the important part played by bacteria introduced into the alimentary tract in the causation of goitre. The restriction of such bacterial intervention would afford an explanation of the protective influence exercised by onions in restraining the thyroid hyperplasia; in view of the minute content of iodine in onions it seems unlikely that a sufficient explanation is to be found in an increased iodine intake consequent on the addition of onions. I think it well to insist on this probability of bacterial intervention, for my recent work on "deficiency disease" has impressed upon me the necessity for bearing in mind not only the conditions of faulty food to which animals or man may be subjected, but also the variable character of the bacterial flora with which the faulty food may be associated in the digestive tract. Here we are concerned with faulty food in relation to goitre production—in relation, that is, to a malady whose prevention is dependent on the provision of an adequate supply of iodine for the needs of the thyroid gland. It is necessary, therefore, to take account of every means by which this supply may be interfered with. I interpret the results of this experiment to mean that in conditions of overfeeding (with butter in excess in the dietary), of lack of exercise, and of imperfect hygiene, the food must, for some reason, provide, in a high proportion of cases, an additional supply of available iodine for the normal functional activity of the thyroid gland.

So much, then, for my original observation with regard to the effects of a diet excessively rich in butter in contributing to the production of thyroid hyperplasia of a type similar to that found in Graves's disease; but this hyperplasia did not involve the discharge from the gland of an amount of thyroid secretion in excess of the requirements of the tissue cells. The pigeons presenting the thyroid hyperplasia did not exhibit any other signs of Graves's disease. The resemblance to this malady ended with the similarity of the histological picture of the thyroid gland in the two cases.

This observation as to the part played by food excessively rich in butter in producing hypertrophic goitre has recently received confirmation from the work of E. and M. Mellanby, who have reported similar results in puppies. They found that of the fats used by them butter induced the greatest degree of hyperplasia. They found, moreover, that cod-liver oil did not produce thyroid hyperplasia, and attributed this protective action to the oil's content of iodine. They comment also on the fact that the thyroid enlargement tended to be less marked when the fat-fed puppies had ample opportunity for exercise and an out-of-door life.

In pursuance of my original observation and of the more recent results of the Mellanbys I devised an experiment to contrast the action on the thyroid gland of free oleic acid with that of butter and of cod-liver oil. A small shelter, 6 ft. square and open at one side, was built on the roof of the laboratory at Oxford. In contrast to Coonoor, where the first experiment was carried out, simple goitre is common in Oxford. A number of small netted wire cages, approximately 16 in. square, and having a netted-wire bottom beneath which was a removable zinc tray, were placed in this shelter. The cages were piled one on top of another in columns of three. Two pigeons were placed in each cage. The amount of movement possible to the birds was thus more limited than in the first experiment and the hygienic conditions less perfect. The conditions under which the birds lived were, in short, highly favourable to the production of goitre, as the results noted in control birds at the conclusion of the experiment show. Some of the pigeons used were highly bred casters from among show birds, descended from a stock that had always lived a confined life; the tendency to goitre production was thus enhanced by hereditary factors. Twenty-eight birds were employed in the experiment, which commenced on April 4th, 1921, and terminated on August 26th (a period of one hundred and forty-four days). The birds were fed on a shop mixture of buckwheat, wheat, split peas, barley, maize, dari, and white African maize. Each bird consumed of this mixture approximately 50 grams a day. Six were in addition each given 1.6 c.cm. of oleic acid a day mixed with the grains; six each received 4 grams of butter a day, and six 1 drachm (3.55 c.cm.) of cod-liver oil in admixture with the grains; the birds ingested the major part of the several fats given. The cod-liver oil was the so-called "cattle cod-liver oil," and contained 0.002 per cent. of iodine. Six birds acted as controls; these

* A Mayo Foundation Lecture delivered at Rochester, Minnesota, on November 20th, 1921.

received the same grains, in the same proportion, but no fats. They were confined in the same way (two to a cage) and in the same shelter as the birds receiving fats. One bird from each batch was killed during the course of the experiment in order to ascertain how the experiment was proceeding. The remainder were killed on the 143rd and 144th days; their thyroids and other organs were removed and weighed. It was found first that goitre, sometimes of large size, was present in controls, in those which received butter, and in those which received oleic acid, but was not present in those which received cod-liver oil. Secondly, it was found that the incidence of goitre was as high in controls as in birds that received butter or oleic acid.

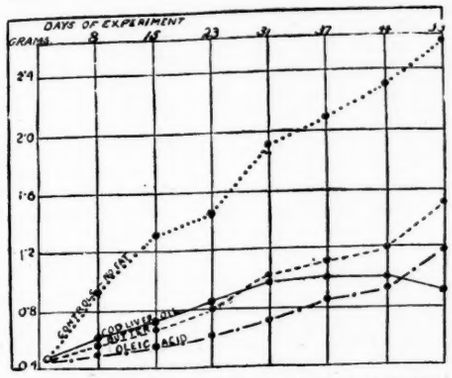

FIG. 1.—Showing the effect of *cod-liver oil*, *butter*, and *oleic acid* in retarding the growth of tadpoles.

The average weight of the thyroids per kilogram of body weight was, however, different. It was:

In controls	537 mg.
In butter fed pigeons	675 mg.
In oleic acid fed pigeons	909 mg.
In cod-liver oil fed pigeons	93 mg.

Great variation in size of the goitres in the first three categories was a notable feature.

The outstanding results of this experiment are: (1) The potency of the conditions of close confinement, want of exercise, overfeeding, and faecal contamination of the food in causing goitre. (2) The completeness of the protection against goitre afforded by cod-liver oil. (3) The influence of butter in favouring the development of the thyroid swelling, and the still greater influence of free oleic acid in so favouring it. (4) The pronounced individual idiosyncrasy to the disease as evidenced by size of the goitre. The last feature is one to which I have drawn attention in the case of congenital goitre produced in kids and in rats by feeding their mothers throughout pregnancy on cultures of faecal bacteria from goitrous persons.[1] It suggests the possible influence of individual variations in metabolic rate in determining the size of the goitre, the greater need of some individuals for iodine than of others, or the more potent operation in some cases than in others of bacterial agencies in the digestive tract in hampering the absorption or utilization of iodine. The fact that free oleic acid appears to be more potent in favouring goitre production than butter, suggests that it may be by means of the free unsaturated fatty acid derived from butter in the digestive tract that the latter exerts its harmful action on the thyroid gland.

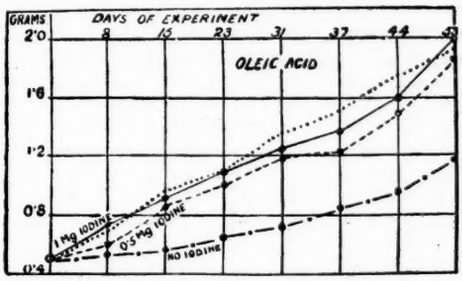

FIG. 2.—Showing the effect of iodine in compensating for the retardation of growth induced in tadpoles by an excess of *oleic acid* in their food. Dotted line: Controls receiving 1.0 mg. iodine per gram of food mixture, but without oleic acid.

The two main facts brought into prominence by this second experiment—namely, that the free unsaturated fatty acid (oleic acid) is peculiarly potent in respect to goitre production (in certain cases only), and that cod-liver oil, containing 0.002 per cent. of iodine, is peculiarly beneficial in respect to goitre prevention, both point to iodine as a common factor concerned in the results. It would seem that in the presence of an excess of free oleic acid the iodine in the food is in certain cases either rendered unavailable for use by the thyroid gland or a larger amount of iodine is in these circumstances required by the thyroid gland; or that the absorption of oleic acid in excess creates in certain cases an increased demand for thyroid secretion on the part of the tissues. In the presence of an excess of cod-liver oil, on the other hand, it would appear that a supply of iodine sufficient to resist goitre-producing influences of a high degeee of intensity is provided by the oil. Further experimental evidence is available relative to both these points.

While the second experiment was proceeding others were in progress with the object of studying the relation between fat-excess and iodine-intake. For this purpose tadpoles were used. It was thought that their sensitiveness to the influence of iodine might serve as an index of the harmful effect exerted by fat-excess on the thyroid gland. The experiments yielded remarkable results.

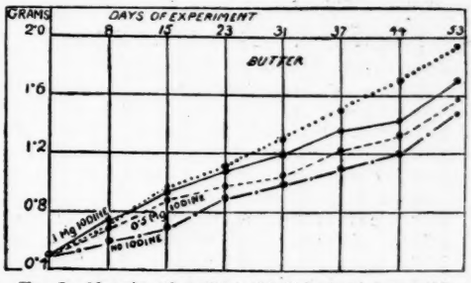

FIG. 3.—Showing the effect of iodine in compensating for the retardation of growth induced in tadpoles by an excess of *butter* in their food. Dotted line represents the rate of growth of controls receiving 1.0 mg. of iodine per gram of food mixture, but without butter

EXPERIMENTS WITH TADPOLES.

The tadpoles used were of the same age—eleven days—and approximately the same size. Fifty were used for each test. They were kept in white pudding dishes, each containing one litre of tap water; great pains were taken to keep the dishes clean and the water fresh. They were fed on a mixture of flour 85 parts, and caseinogen 15 parts, with green pond weed q.s. The flour-caseinogen mixture was made into a soft dough with water, and pills of it were dropped into the dishes. These the tadpoles ate greedily; cannibalism was very rare. Among the fats tested were butter, oleic acid, and cod-liver oil. The several fats were mixed with the flour-caseinogen mixture in the proportion of approximately one part of fat to two of the mixture. The addition of the fat enabled small pills to be prepared as above mentioned. These a so the tadpoles ate greedily during the earlier part of the experiment, more sparingly during its later stage. Three series of experiments were carried out. In the first the effects on the developing tadpoles of the several fats were observed in contrast with controls receiving the same food without fats; in the second the effects of the several fats with the addition of 0.5 mg. of iodine per gram of food mixture were observed in contrast with controls receiving the same amount of iodine but no fats; and in the third the effects of the several fats, with the addition of 1.0 mg. of iodine per gram of food mixture were observed in contrast with controls receiving the same amount of iodine but no fats. Details of the experiments have recently been published in the *Proceedings of the Royal Society*.

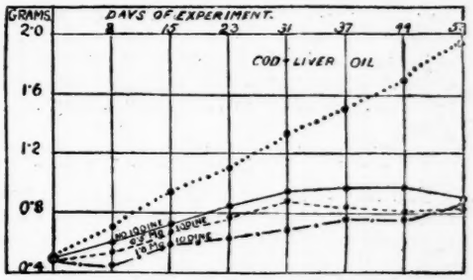

FIG. 4.—Showing the effect of iodine in accentuating the retardation of growth induced in tadpoles by an excess of *cod-liver oil* in their food. Dotted line: Controls receiving 1.0 mg. of iodine per gram of food mixture, but without cod-liver oil.

RESULTS.

1. An excess of the several fats in the food of tadpoles caused remarkable retardation in their rate of growth (Fig. 1).

2. Iodine in amounts of 0.5 to 1.0 mg. per gram of food mixture tended to prevent the retardation of growth induced by butter and oleic acid, but not that induced by cod-liver oil (Figs. 2, 3, and 4).

3. The compensating action of iodine varied in the case of the several fats; it was complete in the case of oleic acid (Fig. 2), almost so in the case of butter (Fig. 3).

4. So far from iodine exercising any compensating action on the retardation of growth induced by cod-liver oil, the retardation was increased by the iodine (Fig. 4).

5. The normal rate of metamorphosis was only slightly affected by the harder fats, such as butter; but was delayed by the fluid and less saturated fats, oleic acid and cod-liver oil.

6. The delayed rate of metamorphosis induced by oleic acid was compensated for by the presence of 1 mg. of iodine per gram of food mixture, but was not compensated for by this amount of iodine in the case of cod-liver oil.

7. The retardation of growth induced by the fats was associated with delayed development of the thyroid gland. Iodine in the above proportion compensated for the retardation of thyroid development induced by butter and oleic acid, but did not compensate for that induced by cod-liver oil.

8. Finally, in a further experiment, in which tadpoles were fed on flour-caseinogen mixture 100 parts and metallic iodine 1 part, the abnormally rapid metamorphosis induced by the high iodine intake was considerably hastened by a high proportion of butter in the food mixture, but markedly delayed by a similar proportion of cod-liver oil.

From these results the general conclusion may be drawn that, in so far as butter and oleic acid are concerned, an intake of iodine approximately proportionate to the intake of these fats in the food is requisite for the maintenance of normal metabolism, and for the normal functional perfection of the thyroid gland. The influence of iodine in further retarding bodily growth and development of the thyroid gland in the case of cod-liver oil, when administered in dosage favourable to both in the case of butter and oleic acid, is not yet understood. It is to be noted, however, that this effect of iodine was the more marked the larger the dose of this element. A further contrast in the behaviour of butter and cod-liver oil is afforded by their action in the presence of a high iodine intake by tadpoles. The abnormally rapid metamorphosis induced by the iodine was hastened by a high proportion of butter in their food, but was delayed by a similar proportion of cod-liver oil. While it is not yet possible to afford a complete explanation of these reverse effects of butter and cod-liver oil, the facts as they stand indicate an important relationship between thyroid function and the metabolism of iodine and fats. Free oleic acid and cod-liver oil also, in respect to their relations with the thyroid gland, have reverse effects; the former favours thyroid hyperplasia, the latter protects against it. In respect to iodine they seem also to have reverse relations: the former when ingested in excess requires to be combined with iodine in the approximate proportion of one part of this element to 3,000 of the unsaturated fat, in order that it may be rendered harmless to tadpoles; the latter when ingested in excess by tadpoles becomes more harmful if combined with this amount of iodine.

Oleic acid also seems to have an effect on the thyroid gland of tadpoles which has not been observed in the case of cod-liver oil, nor in the same degree in the case of butter; it would appear, from the limited number of observations I have so far made, to cause a diminution of the colloid-content of the gland out of proportion to its retardation in development. This observation was made as follows: The tadpoles were serially sectioned, each section being 10 μ thick. The area occupied by the thyroid could thus be measured and the total number of vesicles counted. By measuring with the micrometer eye-piece the diameter of the colloid in each more or less circular vesicle, and adding the figures so obtained together, an arbitrary figure was reached which in the case of tadpoles that received oleic acid was one-third less per gram of tadpole than in controls. The addition of iodine to the food mixture containing oleic acid restored the colloid-content of the thyroid gland to normal. This observation suggests that oleic acid has a special tendency to prevent the storage of iodine-containing colloid in the thyroid gland.

Discussion of Results.

The results of these three experiments possess a number of interesting features. If the question of goitre production be considered simply from the point of view of iodine available for the needs of the thyroid gland, then it may be concluded that under the conditions of the first experiment the food contained a sufficiency of iodine for these needs when butter was absent from the dietary, but not always when it was present. The excessive richness of the food in butter thus became in a relatively high proportion of cases a determining factor in the production of thyroid hyperplasia. In the second experiment on pigeons the results appear to incriminate oleic free acid as a peculiarly harmful derivative of butter, and in this the influence of the unsaturated fatty acid was apparently exerted in increasing in certain cases the difficulties of the thyroid in securing the requisite amount of iodine under the goitre-producing conditions of the experiment. When a sufficiency of iodine was provided, as in cod-liver oil, these difficulties ceased and goitre did not arise. The results of the experiments on pigeons may, I think, be correlated with those in tadpoles; they emphasize the dependence of the animal organism and of the thyroid gland upon an amount of iodine approximately proportionate to the amount of edible fat or of free unsaturated oleic acid ingested. When the available iodine is not sufficient then the organism and the thyroid gland suffer; when it is rendered sufficient, but not excessive, then metabolism and thyroid function proceed normally.

The results of the experiments indicate that there is such a thing as a "fat-thyroid-iodine balance," and that this balance may be disturbed either by an intake of iodine insufficient for the needs of the body in the particular circumstances in which it finds itself, or by the presence in the digestive tract of an excess of fat, and more especially of an excess of free unsaturated oleic acid. Goitre may arise, therefore, either from actual or from relative deficiency of iodine. We thus have an example of a deficiency disease (goitre)—due to an insufficient supply of one essential element of the food (iodine)—arising in consequence of, or favoured in its development by, excess of another essential element of the food. It has become usual of late in connexion with goitre to read of "relative deficiency of iodine in the food" as though the conditions under which it may arise had been known. The present results indicate one means by which such relative deficiency may be brought about—namely, by an excess of edible fat or of free oleic acid in the digestive tract.

But if free oleic acid in the digestive tract is to be incriminated as a determining cause of goitre in actual practice, and as a derivative of digested fat peculiarly harmful to the thyroid gland, it is necessary to ascertain how it becomes relatively excessive to the available iodine in the food. People do not ordinarily ingest the excessive amounts of fats eaten by the animals in these experiments; nor is free oleic acid used as a food. Provided that fats are ingested in normal amounts it seems unlikely that in the ordinary processes of their digestion free oleic acid would normally be relatively excessive to the available iodine in the digestive tract. It is possible, however, that abnormal conditions may arise in this situation in consequence of bacterial action that would render by one means or another the small amount of available iodine in the food relatively deficient, or free oleic acid relatively excessive. A number of possibilities as to the mode of action of bacteria introduced into the digestive tract suggest themselves. What, for instance, is their effect on the iodine-holding elements of the food? Do they rob these elements of available iodine, absorb it in some way, and pass with it out of the body? Or, do they split up the components of the food in such a way as to enable some cleavage product to absorb iodine and pass with it out of the body? What effect have they on ingested fats? Do they interfere with that combination of fatty acids with alkali or bile salts that is necessary for the solution and absorption of these acids? Do they, by some means, lead to a relative excess of free oleic acid over the available iodine in the digestive tube? And, if oleic acid be absorbed in excess, in what way does it increase the difficulties of the thyroid gland in securing an adequate supply of iodine? Or in supplying the demands of the tissues for thyroid secretion? And why are these difficulties greater in some cases than in others? These are among the questions that suggest themselves; their solution will, I think, materially advance our knowledge of the mechanism of goitre production.

I am glad to find that the bacterial aspect of the goitre problem, to which I have devoted so much attention in the past, is at length receiving recognition. Dr. Plummer, whose work has contributed so much to our knowledge of disorders of the thyroid gland, has recently expressed himself as follows:

> "That introduction of bacteria into the digestive tract is an important factor, if not the primary cause of endemic goitre, is fairly well established. As to how the organisms act in the host, there is no definite evidence. That the bacterial flora in the digestive tract may sufficiently interfere with the absorption of the small amount of iodine available in the diet is a possibility, particularly in areas in which this element is relatively small. The relation of the bacterial flora to the available iodine would explain the geographical distribution of goitre."

Formerly, I considered that the harmful effects of bacteria in the digestive tube on the thyroid gland were due to positive toxic agents produced by them in this situation. Of late, however, the possibility that their harmful influence may be due in some part to interference with iodine absorption or utilization has seemed to call for consideration.

I venture to think that the new facts I have brought to notice here throw a further light on the difficult problem of the genesis of goitre. They indicate that the composition of the food has an important bearing upon it; that the food must be considered both in relation to its content of available iodine and in relation to its content of fats; that the thyroid may enlarge not only from insufficient intake of iodine

(a comparatively rare occurrence), but from relative insufficiency of iodine consequent on the presence of an excess of certain edible fats or of free fatty acid (oleic) in the digestive tract; that the food must be considered in relation not only to the normal processes of digestion but in relation to abnormal processes that may arise from the introduction of bacteria into the digestive tube; and that variations in histological types of goitre may result from variations in the composition of a goitre-inducing food. They provide, too, a new point of view from which to consider the genesis of simple goitre, of sporadic goitre, and of exophthalmic goitre.

REFERENCE.

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THE RECOGNITION OF AORTIC INCOMPETENCE.

BY

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I HAVE on many occasions in recent years, in private and hospital work, found incompetence of the aortic valve which had not been previously recognized or even suspected. It has been present in several soldiers, officers and men, who had been demobilized or discharged as physically fit, although at that time they must have had aortic disease, judging from the condition of the heart when first seen by me. I also meet with it from time to time in insurance work in supposed healthy persons, men and women, and in people with known aortic stenosis but unsuspected incompetence. I think it worth while, therefore, to emphasize the importance of a most careful and systematic examination for this lesion, which is, in my experience, more commonly overlooked or unsuspected in its early stages than any other valvular lesion in proportion to the relative frequency of its occurrence.

The failure to recognize aortic incompetence in its early stages is most unfortunate, because the strain thrown by a leaking aortic valve on the ventricular muscle is greater than that produced by any other diseased valve, and steps should be taken to assist the muscle to withstand this strain at the earliest possible moment.

Aortic incompetence is most likely to be overlooked when it occurs, as it not uncommonly does, without any accompanying obstruction or stenosis to attract attention to the diseased aortic valve by its definite, easily recognized systolic murmur heard over the second right costal cartilage. But even when there is obstruction, and it is remembered that it is unusual for this condition to occur without some leaking of the valve as well, the diastolic murmur of incompetence is sometimes not found.

The chief reason why aortic incompetence is frequently overlooked in its early stages is that then its diastolic murmur—which is short, soft, and blowing in character—is generally heard only, or heard best, not at the aortic cartilage where the systolic murmur is heard, but down the left edge of the sternum, and often only in the fourth intercostal space against the sternum—that is, the so-called tricuspid area of the precordia.

With this source of error it is necessary to adopt some safeguarding rules for examining the heart of every patient, and those which I practise myself as well as teach every day are as follows:

I.

To ascertain as accurately as possible, by palpation and percussion, the position and nature of the cardiac impulse and apex beat, always feeling for the latter well out towards the axilla. To assume invariably that aortic valvular disease is present whenever, with no increase of blood pressure, there is any enlargement of the left ventricle with forcible impulse (even if the enlargement be slight in degree) and the heart's action is moderately slow and regular. The onus of proof to the contrary then rests with the clinician, but the assumption will be justified at least in four out of five of such cases.

Hearts which are enlarged with good compensation in aortic disease generally beat regularly and at a moderate rate as compared with enlarged hearts associated with mitral incompetence and auricular fibrillation.

In advanced cases of aortic incompetence with marked cardiac enlargement and muscle failure there is often considerable irregularity, but then there is no difficulty in recognizing the condition.

II.

To examine, in the first place, over the aortic area for auscultatory evidence of valvular disease—namely, the systolic murmur of obstruction and the diastolic murmur of incompetence.

The diastolic murmur is generally, but not always, heard at the aortic area when there is accompanying actual aortic obstruction and the regurgitation is free. Unfortunately, however, in many cases where there is no obstruction and the regurgitation is slight, and also, but less frequently, when there is obstruction and free regurgitation, the aortic diastolic murmur is not heard at the aortic cartilage. The stethoscope must then be applied down the left edge of the sternum and in the fourth left intercostal space—that is, the tricuspid region of the precordia. In the cases in question a diastolic murmur will very likely be heard in this situation, but if one is not found, further search must be made, for this murmur is occasionally heard at a very limited area of any part of the precordia, sometimes nowhere but at the true apex beat. So when the conditions set forth above, which point to aortic disease, are present, the whole of the precordia, but especially that down the left region of the sternum, must be searched for a diastolic murmur.

If such a procedure be adopted there is little likelihood of aortic incompetence being overlooked. I have known an individual practitioner find it in this way in one of his ex-soldier patients when a medical board has not done so.

A diastolic murmur heard down the left edge of the sternum might, of course, be caused by incompetence of the pulmonary valve. This lesion is, however, very uncommon, but if it were present there would be evidence of pulmonary valve disease, especially of hypertrophy of the right ventricle with a heaving forcible impulse in the left of the epigastrium under the costal arch.

Mitral or tricuspid diastolic murmurs with their associated physical signs need rarely be mistaken for aortic diastolic murmurs.

In several of the cases I have observed there was no previous history of rheumatism in any form, of chorea, tonsillitis, scarlet fever or trench fever, the only illness remembered having been influenza or malaria. In one or two I could get no history of any previous acute illness or of venereal disease, and I was forced towards the conclusion that the very strenuous exertion of physical training and active service had caused some dilatation of the aorta and incompetence of the valve. I did not always use the Wassermann test to check statements, but I felt convinced that some of the young soldiers with aortic disease had not had syphilis.

In some of the soldiers I was much impressed by the fact that when aortic incompetence developed in muscular and vigorous men the heart muscle was evidently able to compensate so well for a time that there was no breathlessness on exertion and no sensation of over-action sufficient to attract attention and cause a visit to the medical officer.

I add notes of a few of the more interesting cases:

CASE I.

J. D., a motor driver, aged 33, who drove a Ford ambulance car in the Expeditionary Force from Mesopotamia to Baku was admitted to the Manchester Royal Infirmary in 1919 for a relapse from malaria. He had a forcible cardiac impulse, with extension of the heart to the left 4½ in. from the mid-sternal line; there was no increase in the blood pressure and no albumin in the urine. On auscultation the only evidence of valvular disease was in the fourth intercostal space at the left margin of the sternum. At this point was a definite soft aortic diastolic murmur, which I demonstrated at a post-graduate clinic. I advised him to inform any medical board before which he went of the existence of the valvular lesion, and I also told him that he was not fit for hard manual labour. He was readmitted to the infirmary the following year, when he informed us that his medical boards had not found the valvular disease. The murmur was more marked and the cardiac enlargement greater then. I saw the man at a later date, when the condition of the heart was worse. He had not had any other illness than the malaria to account for the aortic disease.

CASE II.

R. C., aged 29, served at Salonica, and was demobilized July 7th, 1919. He had had no malaria or other definite illness, but only pain in the back in May, 1919, for which he was given aspirin. He was discharged with "V.D.H." I saw him in November, 1919, at the request of his own doctor, who considered that there was mitral disease and aortic incompetence, although the medical board said there was no aortic disease present. The heart was enlarged, extending 5 in. from the middle line. I found that he had mitral stenosis and aortic incompetence, there being a definite soft diastolic murmur at the left of the sternum in the third intercostal space. There was a crescendo murmur but no diastolic murmur at the apex.

CASE III.

W. D., aged 28, farmer, served under the R.F.A. and was demobilized as fit without asking for any medical board in June, 1919. I saw him on August 22nd, 1919, as he was complaining of great shortness of breath and severe pain over the spleen, which I thought after examination was due to an infarct. I found that his heart was about twice its normal size, extending to the left six inches from the mid-sternal line. There was marked aortic and mitral incompetence, with septic endocarditis. He had had myalgia in the army in 1916, and went back to his duties before he really felt well. He got "all right" afterwards, he thought, and never asked for a medical board or demobilization; but there must have been valvular disease then, and I advised him to claim for it. He died within four weeks of admission to hospital.

CASE IV.

F. W., aged 23, served throughout the war as stretcher-bearer in the R.A.M.C. He had influenza in May, 1918, but did not lie up with it. During the last twelve months of duty he found his heart thumping in a way it had not previously done. He was demobilized as "fit" in June, 1919, without going before a board. He was sent to see me in the following November; I found that he had an enlarged, heaving heart, rate 94, regular. There was a systolic murmur at the apex conducted into the axilla, and a to-and-fro murmur at the aortic area, the diastolic murmur being most distinct in the tricuspid region. He died the year after I saw him.

CASE V.

L., aged 17, examined for insurance in 1918, had an enlarged, regularly beating heart with forcible impulse. In the fourth intercostal space against the left edge of the sternum was a soft diastolic murmur. There was no other evidence of valvular disease. I reported that he had aortic incompetence and advised refusal of the policy. Two years later I was asked to review the opinion as he had been taken to a doctor who said there was no aortic disease. I found the diastolic murmur in the same situation, and my finding was checked by an independent examiner.

CASE VI.

B. F., aged 45, was known to have a faint systolic murmur at the aortic area, and I was asked for my opinion on the value of the case for insurance purposes. I found that the heart was enlarged, with good compensation, the apex being in the sixth space, five inches from the middle line. The rhythm was regular and rate about 88. There was a faint systolic murmur at the aortic area, but there was also a very definite diastolic murmur in the fourth interspace against the left side of the sternum.

CASE VII.

A lady, aged 25, a teacher of physical exercises in schools, who played hockey and looked quite healthy, was an apparently good life. On palpation I was surprised to find that the impulse was regular, forcible and slow (78), and extended four inches to the left from the middle line. The blood pressure was normal. The only auscultatory evidence of valvular disease was a distinct soft diastolic murmur in the fourth left intercostal space against the sternum, which was undoubtedly caused by aortic incompetence.

I can call to mind at least four other insurance cases, all men, in whom I unexpectedly found aortic incompetence with a murmur in the same situation and no other auscultatory evidence of valvular disease.

Conclusions.

When a heart is enlarged, and beating regularly, or fairly regularly, and at a moderate rate, and there is no increase of blood pressure, aortic valvular disease must be suspected and auscultatory evidence sought for, not only over the aortic cartilage but also down the left border of the sternum, and especially over the tricuspid region of the precordia where the earliest evidence of aortic incompetence is most likely to be found.

THE TREATMENT BY REST OF ACUTE INFECTION OF THE KNEE-JOINT.

BY

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A RECENT publication[1] in which active movement has been suggested during the acute stage of streptococcic infection induces me, as a surgeon who, in civil practice since 1896,[2] has opened and drained all cases met with of streptococcic (including pyaemic) joint effusions, to enter a protest against any form of movement in acute septic arthritis until the microbic fight has terminated. This period may be recognized by the cessation of "discharge," pain, tenderness, fever, and accelerated pulse; then, and not until then, I advocate, and for years have practised, encouraging the patients to move their knee-joint, gently, once or twice daily, and gradually to increase the number and extension of same.

In my opinion the main factor in this, as in most other acute septic problems, is to do everything possible to secure what is the natural foundation of all rational treatment, rest, as expounded by our master, Hilton. And I maintain that thorough drainage is the natural corollary of Hilton's ideal in that it clears the "field" of the virulent débris of battle, and, if combined with irrigation by suitable antiseptics,[3] rapidly destroys the headquarters of the enemy, thus affording the human cells a chance tranquilly to execute their curative function.

I do not hesitate to state that in case the drainage system adopted is so insufficient as to require voluntary traumatism on the part of the patient to expel pus from the recesses of his already belaboured knee-joint, the auxiliary virtues of surgery are sadly discounted by a half-hearted and inadequate operative method which is positively dangerous to life, in that a virulent articular pus bag is formed which is certain to receive further contamination from outside through bacterial trap-doors which do not admit of automatic drainage from within.

Drainage, like many other things, may be classified as good and bad; the former, if properly done, does not necessitate any violation of Hilton's law; but the latter may embrace anything—loss of reason, dismemberment, or death.

A very simple illustration will suffice to demonstrate the effect of voluntary traumatism in a very common septic condition. One sees a boil on the back of the neck time after time converted into a carbuncle by the patient's efforts to squeeze the pus out of it.

It is not an exaggeration to mention that a considerable percentage of my hospital work has been devoted to atone for the mentality of those who are lured to ignore the elementary principles which govern the natural process of repair by the transient complaisance of some temporizing finesse, which, as often as not, redounds to the anguish of their patients, to the detriment of themselves, and to the discredit of their profession. Seldom a week passes by without my being forced to ask myself the question: Why has Hilton's *Rest and Pain* been allowed to go out of print?—a classic which every English surgeon worthy of the name should take national pride in transmitting to posterity. It stands to reason that the greater the evolution in the science of operative surgery the greater becomes the facility for the application of its doctrine.

I am aware that there are different strains of streptococci and different degrees of virulence of each and of the same strain, and that a treatment which might be futile in the superlative might be effective in the positive; yet it is a duty, founded on long experience, to mark the fact that it is infinitely more culpable to mistake the former for the latter than vice versa, and I do not know of anything outside a grave abdominal crisis in which it is more imperative to order a "general attack" than in a pronounced case of septic infection of a knee-joint, remembering that in what is always a life and death struggle the surgeon merits congratulation who ultimately finds that his dispositions exceeded the necessities.

The plan[7] which I adopt for such cases is as follows:

Ether by the open method is administered to the patient on an operating table heated by electricity. The limb is shaved, scrubbed with soap and hot water, thoroughly washed with alcoholic mercurial solution (1 in 1,000), and then mopped with acid mercurial lotion (1 in 2,000). A tourniquet is then applied round the upper third of the thigh. Two lateral 1½ in. capsular incisions are made above the patella into the synovial pouch. A long pair of blunt-pointed curved scissors is passed upwards through one of the lateral wounds to the apex of the synovial pouch and a similar opening made. The scissors, again as guide, are passed diagonally downwards through each lateral incision behind the patella to the most dependent points of the inferior angles of the capsule, and the same length of incision is made through the capsule on either side.

The joint is thoroughly irrigated with warm hydrogen peroxide lotion (2 oz. to the litre), the tube is inserted in turn through each of the five openings, and this is promptly followed by a good wash-out with warm carbolic lotion (1/2 oz. to the litre).

Firm pressure is then made with large sponges all around the joint so as to make sure that no pockets of pus escape detection. If any suspicious fluid is seen exuding after firm forward pressure in the popliteal space, the patient is turned on his side and a posterior incision made into the capsule of the joint. The tourniquet is then removed, and spurting vessels seized and ligatured with fine catgut.

Wisps of ten to twenty strands of silkworm gut are then

drawn into the joint by means of a peritoneal forceps passed through from an opposite wound. Each wisp is fixed by a catgut stitch to the edge of the skin incision excepting the posterior opening, which is kept patent by a very thin roll of gauze.

A towel is momentarily applied to cover all wounds while a suitable splint is being brought into position. The towel being removed, dry gauze is applied to the posterior wound, and the splint is then accurately adjusted to the limb and bandages applied, independently, above and below to maintain immobility.

The whole exposed portion of the knee is then enveloped in a hot mercury perchloride fomentation (1 in 3,000), wrung dry, and sterilized wool with bandage applied.

On return to bed in an open corridor facing the sun the limb is suspended in a Salter's cradle, outside the bedclothes. A hypodermic injection of strychnine and digitalin is given every six hours.

Six hours later the irrigation programme commences: Four-hourly flushing is carried out through each of the anterior wounds with warm peroxide and warm carbolic lotions in the order and strength mentioned above, and a hot perchloride fomentation applied after each irrigation.

Even at the risk of boring my readers with detail I think it opportune to mention a few reflections of a twenty-five year innings in infected knee-joint surgery.

Heated Operating Table.

Many of these cases are admitted into hospital in the throes of septicaemia, and as it takes at least twenty minutes to complete the procedure just mentioned, I know of nothing more conducive to the diminution of shock than keeping the patient warm during operation. For this purpose I have for years used hot water tanks or hot water cushions, but recently I have found that an electric heating installation (fitted into the body of the table) is infinitely more satisfactory.

Posterior Drainage of the Joint.

It may have been noted that I make this contingent on the result of forward pressure behind the knee after the five anterior openings have been effected and joint well irrigated. My reason for adopting this course is that (except in the case of a foreign body penetrating or lodged behind the articulation or a direct septic wound) I have found that there is rarely any collection of infective material in this area if the joint has not assumed a decided flexed position prior to operation.

While writing this paper a desperate case of pyaemic infection not only helped to verify this conclusion, but yielded some information which may be of interest to record.

Judging from the general swollen condition, internal tension, and large quantity of "dirty liquid" escaping from the joint while anterior incisions were made, I felt certain that there was general infection of the whole sac, and, as time in this instance was vital, before irrigating and without the above test, I had the patient rolled on his side and (of course, with the limb extended) rapidly exposed and opened the posterior portion of the capsule. Not a drop of fluid exuded even when the edges of incised capsule were forcibly drawn apart by blunt hooks. With a 3 ft. elevation of the irrigator the tube was inserted into the joint, but no liquid was seen to escape through any of the anterior openings; as a matter of fact, it all ran back alongside the tube. Not being satisfied, I reversed the procedure and got two assistants to plug up four of the anterior openings with bibules while I inserted the tube through the remaining anterior one, and I succeeded in apparently distending the joint to its utmost limit, yet not a drop appeared in the posterior opening, although this was held patent by another assistant with blunt hooks. I was still sceptical, and instructed the sister carefully to note the daily condition of the posterior wound dressing, thinking that some of the four-hourly anterior irrigation would eventually percolate backwards. Five days later she reported: "I changed the gauze drain at back each day, but it was never wet." We gave it up, omitted the gauze pack, and, although generally forgotten, this wound healed up of itself aseptically. In parenthesis, I might mention, we saved the limb, largely due to the incessant care of Sister Knight.

My experience dictates that in infected knee-joints the dangerous zone generally lies directly in front of the anterior line of the articulation, particularly intensified in the external and internal inferior angles of the anterior portion of the articular sac, and, although the tension of anterior structures renders drainage of this region comparatively difficult, it must be deliberately and thoroughly executed, otherwise the rest of the procedure would be futile.

Drainage by Silkworm Gut.

Like other surgeons, I have had my share of difficulty in finding an efficient material, and although I am certain that rubber tubes have, in the past, prevented thousands of catastrophes in my work, yet there is no denying the fact that, *per se*, they do very little drainage, and their beneficial use consists in keeping the wound open until tunnels have formed through which drainage takes place after their removal. A short time ago I substituted bundles of ten to twenty strands of silkworm gut, doubled in two, and ligated with a piece of fine silk about half an inch from each end (of double). From the reports of the staff, as well as from personal observations, the results have been most gratifying: they afford excellent drainage, do not become foul, and no tube of pyogenic membrane forms around their track irrespective of the time they are retained, without changing, in abdominal or other wounds. Their removal at any time can be easily effected by a few gentle rotations before they are drawn outwards. In some cases I place two such wisps in each wound, removing one on the first or second day to facilitate entrance of the irrigating tube, and retain the other *in situ* until the fifth or sixth day. Their insertion into the knee-joint can be most easily effected by passing a long forceps through an opposite wound, seizing one end, and liberating the grip of the forceps when the end of the wisp reaches the centre of the joint; a catgut stitch to skin secures its remaining in position.

Disinfectants.

The more I employ the "perchloride–peroxide–carbolic" combination in the treatment of grave septic wounds the more convinced do I become that it is the ideal antiseptic which does not cause any irritation of surrounding skin. It never produces toxic symptoms; it promptly gets rid of any smell; if used in the strength above indicated it does not mortify living tissue cells; and after the septic elements are removed it induces the formation of granulations of a vigour and normal living flesh colour superior to anything with which I am acquainted.

If one observes its action daily, for instance, in a large gutter wound of a femur or tibia in acute osteomyelitis, its fire-brigade order of procedure is truly remarkable; immediately following the primary irrigations the whole infected field assumes a grey, superficial, sloughy aspect due to the rapid chemical fixation of every particle of infected tissue. Such an appearance for the moment might be disconcerting if one did not visualize a concomitant decline in the temperature and pulse charts. Profuse discharge (the more the better) commences within a few days, and by the end of the first week some scattered bright dots of healthy granulations make their appearance. At the end of the second week, if drainage has been complete and pockets thoroughly exposed, the whole vista is transformed into a huge bright red sore studded here and there, in bold perspective, with isolated white islets of necrotic tissue, which promptly disintegrate and vanish. Within twenty days or so nothing septic-looking remains, except, perhaps, a few marooned black patches of necrotic bone, which in turn promptly become detached, leaving the camp clear for the "sappers" to fill up the breach with living vermeil bricks. As the discharge of pus declines the daily number of irrigations and fomentations is reduced, and the sore quickly heals under the benign influence of the best of all dressings for a post-septic wound, a perchloride of mercury fomentation (1 in 3,000), wrung dry, applied once or twice daily. No form of rubber tissue is ever used in these fomentations. The sterilized wool is placed directly over the impregnated lint and the bandage applied. A perchloride fomentation must not be used after disinfection of the skin with iodine until all visible trace of the latter has disappeared or has been removed by washing thoroughly with alcohol. Otherwise a sodden or irritable condition of the skin is likely to result.

Alcohol.

Some years ago the late Professor Nicolas Senn honoured me with a visit, and was much interested in the treatment adopted for railway septic cases. When I had concluded my explanation of the routine, he asked: "What do you do about alcohol in these cases?" I replied: "I generally give them something." "That is right," he said, "I pour brandy into them." Such a practice at the time struck me as somewhat unorthodox, but as years rolled by I gradually came to the conclusion that there was far more in Dr. Senn's statement than I was prepared to admit at that time. I am now convinced that it would be fatuous to withhold 4 oz. of brandy, with or without half a bottle of champagne, daily, while a previously healthy adult is quivering on the brink of eternity

in a state of profound septicaemia, delirious, with a pulse of 120, dry tongue, and no appetite except for bits of ice or sips of water. If he can be induced to swallow diluted alcohol in some form or other, backing this up with serum injections and nutrient enemas, given previous sound surgical intervention, our feeling is "We shall win."

During the convalescent stage of any acute disease, while I am no partisan of the continued use of spirits, I have such a profound belief in the benefit [5] of the daily administration of stout, beer, or wine with meals, and after the remarkable and rapid improvement which I have seen, times out of number, following its initiation, I can, in all truth, state that, "To doubt would be disloyalty, to falter would be sin."

Drop-Foot.

I cannot conclude without reference to a condition which affords us considerable trouble. Case after case of some joint or bone lesion of leg, treated for some time elsewhere, comes into hospital complicated with a drop-foot; usually, inquiry reveals that these patients have been for months in plaster or splints, and that the doctor in charge never thought of keeping the foot at a right angle, or impressing upon the patient the necessity of moving his ankle-joint once or twice daily. In some of these cases I have observed that trophic changes have taken place, with the result that when one attempts to correct this deformity, the slightest pressure of a pillow, splint or bandage wipes the skin off the foot, leaving a most intractable sore on instep or heel. This in itself constitutes a pretty delicate problem, not to mention the serious handicap such a condition of things entails as far as any rectification of the primary lesion is concerned.

Active Movement in Tuberculous Arthritis.

In the publication referred to at the commencement of this article I also observed that passive motion, under extension, has been suggested in tuberculous disease of the knee-joint, associated with the name of a very eminent surgeon whose personal results I do not doubt, and for whose work in general I have very great respect. With all deference, in this instance I must beg to differ in so far as to state that, even in the most dexterous hands, passive ("the damnation" [6]) movement of joints should be consigned to the past tense, and that active movement should not be permitted until the *x* rays show a normal osteal condition, and *tumor* and *calor* have visibly and palpably ceased to exist in the affected joint.

After some experience in the treatment of this lesion, which has invariably taken the form of one to two years' absolute rest in a splint, with nutritious diet and continuous life outdoors, I can vouch that the result will be cure with normal articular movement in 90 per cent. of the cases who seek attention before disorganization of the joint structures takes place or advanced caseation and sinuses have formed.

In thirty years' hospital work I cannot recall a single instance in which a tuberculous hip- or knee-joint (that has been got in time) has become ankylosed after a treatment of two years' rest in splints. And, moreover, I have been frequently astonished to find what a remarkably slight tendency there is to the formation of adhesions, and short duration of same, even in cases in which the *x* rays, on admission, had demonstrated marked caries. The day after this article was passed to my typist the following coincidence arose:

A patient, aged 21, was admitted to hospital on September 13th, 1918, suffering from early, but well defined, tuberculous disease of the right knee-joint, for which he was treated out of doors by absolute rest in splints until August 20th, 1920. As the limb had now resumed its normal contour, and there was no extra heat on comparative palpation (verified by three different pairs of hands) I asked him (for the first time since admission) to move the joint. This he willingly complied with, and without the least hesitation moved the knee, painlessly, through a visible angle. Apparently no adhesions had formed, and the absence of even initial temporary stiffness after twenty-three months' fixation points an instructive moral. I saw him again, three days later, on a wheel chair in the garden, proudly demonstrating the increase in his range of daily active movement. The *x* rays showed a normal joint.

I cannot imagine a greater victory for Hilton's teaching than these phenomena.

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A CASE OF JEJUNO-COLIC FISTULA FOLLOWING GASTRO-ENTEROSTOMY.

BY

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JEJUNO-COLIC FISTULA following gastro-enterostomy appears to be sufficiently uncommon to warrant record of the following case in detail. The patient was a man, aged 33, who was admitted into St. George's Hospital under my care in July, 1919, for abdominal pain and vomiting.

Previous History.

In 1914 he was operated on in a London hospital for duodenal ulcer, which had produced symptoms for two years and was demonstrated at operation. A posterior no-loop gastro-enterostomy was performed, as a result of which his symptoms disappeared and he regained his normal health. Pain, however, recurred some nine months later and continued in spite of medical treatment. He was accordingly readmitted into the same hospital in December, 1916, and submitted to further operation. During the operation difficulties arose with the anaesthetic and the investigation had to be abandoned; it was reported to the man's doctor that hard glands were present in the mesentery and that there were nodules in the peritoneum and the liver. He derived no benefit from this second operation, and for over two years had had persistently recurring attacks of pain in the right hypochondrium, with occasional vomiting. The pain had little or no relation to food unless anything solid was taken, when a severe attack came on in about an hour. On five occasions during 1918 and 1919 he had had attacks of haematemesis and melaena—the last attack in May, 1919, being of a severe character. He had been steadily losing weight and was unable to take anything but liquid food.

Condition on Admission.

He was a slightly built man, extremely poorly nourished and haggard from pain. The abdomen showed two soundly healed scars; there was no evidence of any enlargement of the stomach nor tenderness over it. Over the duodenum pain was elicited on light palpation and there was constant muscular rigidity. *X*-ray examination showed that the stomach emptied quickly and completely, the barium passing out both by the pylorus and the stoma. There was no *x*-ray evidence of an ulcer. The gastric juice contained 0.26 per cent. HCl.

Operation.

On July 9th, 1919, I reopened his abdomen and found as follows: The original anastomosis was quite satisfactory with no signs of ulceration in the stomach at the site of the anastomosis or in the jejunum; the liver and gall bladder were normal. On the antero-internal aspect of the second part of the duodenum there was a scar of an old ulcer, puckered and adherent to the pancreas. Half an inch proximal to this and rather more anterior in situation there was a second small active ulcer with considerable induration and hyperaemia around it. As the local treatment of the ulcers appeared to be impossible, the pylorus was clamped and divided, the two ends being closed with silk stitches. The abdominal wall was then sutured in layers.

The immediate result was satisfactory, and he was discharged from hospital four weeks later free of all symptoms. He was given careful instructions as to his diet, and in addition had an alkaline mixture to take after meals for three months. He remained well and without pain or vomiting for about fourteen months, during which time he increased considerably in weight. In October, 1920, after a surfeit of periwinkles, he had a sudden attack of severe abdominal pain followed by vomiting and diarrhoea. The pain subsided after a few days, but the diarrhoea, to the extent of eight to twelve evacuations a day, with occasional attacks of vomiting and eructations of foul gas, continued. He steadily lost weight, and eventually in May, 1921, applied for further treatment at St. George's.

Condition on Readmission.

He was greatly emaciated (weight 6 st. 5 lb.); his skin was earthy in colour; the pulse was small, thready and rapid, and a considerable degree of anaemia was present (haemoglobin 55 per cent.; red blood cells 3,500,000). Local examination of the abdomen was negative, except for some slight fullness above and to the left of the umbilicus. *X*-ray examination, after a barium meal, showed that a portion of the meal passed, after a very short delay, into the transverse colon. He was kept under observation for ten days, during which time his bowels acted, on an average, ten times a day, and he vomited from ten to thirty ounces in each twenty-four hours. The vomit and the material evacuated from the bowel were identical in appearance, consisting of a lemon-yellow, frothy fluid, of the consistence of thin porridge, acid in reaction, and with a smell which was usually sour, but at times slightly faecal. The condition being evidently one of gastro-colic or jejuno-colic fistula, operative interference offered the only chance of saving the man's life.

Operation.

A mass of adhesions were found about the pylorus, preventing any investigation of this region. The gastro-enterostomy stoma was in good order, with no thickening or sign of ulceration; the efferent loop was dilated and hypertrophied, and about three inches from the stoma the jejunum and transverse colon were intimately adherent, this evidently being the site of the fistula, a fact which was confirmed by opening the jejunum distal to the adherent portion and introducing a finger, which passed through the fistula into the colon. Separation of the two pieces of gut, which were greatly thickened at the site of apposition, was carried out with some difficulty, and after being effected the hard edges of the old ulcerated areas were excised, and the openings into the two pieces of gut were closed by means of two layers of catgut stitches, without noticeable lessening of the lumen in either case. As an additional precaution an omental graft was applied to each suture line. The abdomen was then closed.

His condition was precarious for forty-eight hours, after which time he made a rapid recovery; the vomiting ceased immediately after operation, and the diarrhoea, although troublesome for about a fortnight, eventually entirely subsided. He was kept in bed for a month, during which time he gained weight steadily, and on discharge on June 20th weighed 7 st. 6 lb., a gain of 15 lb. since admission. He returned to the care of Dr. Shephard, of Sheerness, who reported that in August, 1921, his weight was 9 st. 10 lb., and that his abdominal condition was quite satisfactory, as it is now in January, 1922.

Conclusions.

1. It seems probable in this case that the causative factor for ulcer formation was some abnormality of the gastric juice.
2. The gastro-enterostomy performed in 1914 allowed the original ulcer to heal, but a persistence of, or a recrudescence of, the abnormality of the gastric juice caused the formation of a second ulcer.
3. The second ulcer healed after complete diversion of the stream of gastric contents by division of the pylorus; but
4. As a result of this proceeding, and in spite of dietetic and medical treatment, a jejunal ulcer formed from the same causative factor, aided by a dietetic error.
5. The jejunal ulcer was of an acute type, as it is remarkable that no symptoms of jejunal ulceration were noted until the fistula was established.

A SEROLOGICAL INVESTIGATION OF ORIENTAL SORE.

BY

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DURING the last three years a number of cases of oriental sore attended Queen Alexandra Military Hospital for diagnosis and treatment. Most of the cases had multiple sores either of the ulcerative or non-ulcerative type, and in many of the cases both types of sores coexisted. For the reason that the sores were found on exposed parts of the body they frequently presented a more or less symmetrical distribution, which characteristic, coupled with their chronicity, often suggested the question of syphilis. In the majority of cases of oriental sore the clinical history and the finding by the microscope of Leishman-Donovan bodies quickly decide the diagnosis. But in some cases, more particularly those of the ulcerative type where Leishman-Donovan bodies cannot be found, the question of diagnosis between syphilis and oriental sore becomes one of great importance and very great difficulty. And this difficulty may be enhanced in some cases by the occurrence of a solitary sore involving such a situation as the lip or eyelid.

The diagnosis of oriental sore from syphilis has been hampered by writers on tropical diseases stating that the blood in some cases of oriental sore has been found to give a positive Wassermann reaction. Professor Hewlett,[1] for instance, in his well-known *Manual of Bacteriology*, writes: "The reaction (W.R.) is not confined to syphilis. It may also be obtained (with the antigen employed for syphilis) in leishmaniasis." Stitt[2] states that "Rabello noted that a positive Wassermann may be present in cutaneous leishmaniasis." Daniels,[3] and Castellani and Chambers,[4] while recognizing the difficulty of differentiating oriental sore from syphilis, fail to mention the Wassermann test as an aid to the diagnosis. The same may be said of Manson.[5] In Daniels's work on *Tropical Medicine* we read: "Syphilis is the disease for which oriental sore is most likely to be mistaken. The absence of the other symptoms of syphilis and the failure of antisyphilitic treatment should enable a correct diagnosis to be made." Castellani and Chambers write: "The only way to come to a definite diagnosis in difficult cases is the microscopical examination." From these quotations it may be legitimately concluded that a great deal of doubt exists as to the value of the Wassermann reaction as a clinical test for the differential diagnosis of oriental sore from syphilis.

Influenced by these considerations I examined the blood of 28 cases of oriental sore by the complement fixation test according to the Wassermann technique used at the Military Hospital, Rochester Row. In 27 of the cases the diagnosis was established by the microscopic findings of Leishman-Donovan bodies. In one case of the series no Leishman-Donovan bodies were found. This case presented many old cicatrices on both legs and arms, which, from their clinical history and position, were obviously the result of oriental sores.

Of the 28 cases examined by the Wassermann test only one case gave a positive reaction. This case had points of clinical interest which helped to establish the fact that a positive Wassermann reaction is practically never found in oriental sore without concomitant syphilis. The case which proved the exception to the rule was one with an ulcerated oriental sore on the left cheek. Leishman-Donovan bodies were found. The skin on the outer side of the sore presented an irregularly raised dry scaly appearance, not unlike a chronic eczema of the beard, and prevented shaving. This condition of the skin was at first thought to be part of the ulcerated oriental sore, and would most likely clear up after the intravenous injections of sodii antimonial tartrate solution, the line of treatment pursued. In this, however, we were disappointed. The sore on the cheek healed, and the Leishman-Donovan bodies could no longer be found, but the condition of the skin posterior to the sore remained unchanged. The patient's blood was then submitted to the Wassermann test and found strongly positive. A few intravenous injections of "914" with mercurial treatment quickly brought the skin to a satisfactory condition, and confirmed the diagnosis of concomitant syphilis, and further anti-syphilitic treatment changed the Wassermann reaction from a strong positive to a negative.

Although these twenty-eight cases may be considered a small number to dogmatize on, I may be permitted to point out the following facts:

1. The series includes cases in all stages of the disease.
2. All the cases, except the one mentioned with multiple scars, were diagnosed definitely oriental sore by the microscopic findings of Leishman-Donovan bodies.
3. The blood serums from all the cases were examined independently by the Wassermann test at Rochester Row Military Hospital, London.
4. The findings of the Wassermann reaction were negative in all the cases examined except the one recorded with concomitant syphilis.

From these facts it may be confidently concluded that, in the absence of concomitant syphilis, the Wassermann test never gives a positive reaction in cases of oriental sore.

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TREATMENT OF RAT-BITE FEVER WITH NOVARSENOBILLON.

BY

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CAPTAIN I.M.S.

THE following case presents several points of interest. The severe inflammatory symptoms and fever commenced four days after the bite, whereas the incubation period is usually said to be five weeks to two months. The patient suffered from relapsing fever with intervals of three days. The Wassermann test was at first strongly positive, but became negative after the disappearance of all signs and symptoms which immediately follow the injection of 0.2 gram of novarsenobillon.

A havildar was admitted to hospital on August 30th, 1921, with the history of having been bitten by a rat on the right forearm fifteen days previously whilst on leave. Five hours after the bite

he went to the local civil hospital, and the bite was cauterized with what appears from his account to have been silver nitrate. Three days later he returned to Secunderabad, felt quite well, and had no local pain.

On the fourth day he had fever, swelling of the forearm, with pain and tenderness around the bite. For the next ten days he was "excused duty," and attended the medical inspection room for treatment with hot fomentations. There is no record of attacks of fever during this period, but the symptoms did not improve nor the inflammation subside.

On the fifteenth day after the bite he was sent to the Indian Station Hospital for admission. The temperature was then 101°. The right forearm showed general swelling, with a localized brawny infiltration around a shallow ulcer about the size of a sixpence. The blood film revealed no malaria parasites or spirilla. The epitrochlear gland of the right arm was enlarged and tender, but the axillary glands were not affected. No rash or urticarial lesions were noted. Fever continued for four days, but was never higher than 101°. On the fifth day after admission the temperature was normal, and continued normal for three days. Blood was taken for Wassermann test; scraping of ulcer found negative to organisms of streptothrix type.

On the eighth day after admission the temperature again rose to 102°, and the inflammation showed no improvement.

On September 8th, 1921, ten days after admission, or twenty-fifth day after the bite, 0.2 gram of novarsenobillon was injected intravenously in 10 c.cm. of sterilized double distilled water. The following morning the temperature was 99°, and in the evening normal; there has been no recurrence.

Four days later all signs of inflammation had completely disappeared, and the patient was quite well. The Wassermann test of blood before the injection of novarsenobillon was strongly positive; twelve days after the injection it was negative.

In the literature at my disposal I have been unable to find any record of a positive Wassermann reaction in association with rat-bite fever, but I am informed that a positive reaction has been recorded twice previously.[1]

In my case, as the Wassermann reaction became negative after what was virtually a provocative dose of novarsenobillon, it appears unlikely that the positive result was due to a syphilitic infection; furthermore, the patient had no history, symptoms, or signs of specific disease.

My thanks are due to Lieut.-Colonel W. D. A. Keys, C.I.E., I.M.S., for permission to publish the note on this case.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ARTHRITIS DEFORMANS AS A DEFICIENCY DISEASE.

OSTEO-ARTHRITIS, or arthritis deformans, has always been the subject of much speculation regarding its true pathology, and at the present moment many different theories are advanced respecting the proper classification of the disease. Its etiology also seems obscured in its origin. While the multiple arthritis frequently associated with some deformity in children can, like acute rheumatism, usually be said to be related to some blood infection, the chronic arthritis occurring chiefly in adult or middle-aged women, less often in young adolescents and men in middle life, does not to my mind seem to come under the category of an infection. There is a tendency to believe that this type of chronic rheumatism among civilized communities is on the increase, unfortunately without any specific curative remedy; all that can be done is to check it from getting worse; but when once developed, though there may be periods of rest in the stage of onset, yet eventually the progressive nature of the malady asserts itself, rendering the sufferer sooner or later a hopeless cripple.

From many years' experience of treatment of these disappointing cases, and comparing them with types of diseases connected with improper feeding, I am of opinion that the condition is connected with the class of deficiency diseases. Arthritis deformans is frequent in women of the poorer classes, who rarely have a properly selected meal, living, as they say, "on anything" in the house, usually bread and margarine with tea, their husbands being at work and having their meals away; thus these women are depriving the metabolism of those essential salts necessary to a healthy existence, and the mineral salts contained in the bones are dissolved out into the poorly nourished blood and tissues with low mineral content, leaving the bones in the eroded deformed condition so well known in the later stages of the disease; but at the early stage, of course, this erosion is not evident, only the gradual molecular destruction productive of pain in the joint.

One of the chief reasons which has induced me to associate arthritis deformans with deficiency disease is the fact that its occurrence is most often in that class of patient who for years have lived upon an improperly selected diet; granted that it is found among better class people who can have a proper diet, yet if the food of these cases were analysed over a period of years a deficiency of some kind would be found. Apparently, when the tissues become unstable it is impossible to say whether the salt-dissolving properties of the fluids of the body or the calcium salts of the bone itself are less easily retained; but nevertheless the process once started becomes progressive, with the results described.

Another point of some significance bearing upon the above is the water supply. I happened to have a knowledge of two districts, one where the supply was hard water containing a large amount of both temporary and permanent salts; here the amount of osteo-arthritis was very little. In the other district, where the water was soft, with little or no temporary hardness and very little permanent hardness, the cases of osteo-arthritis were much more numerous.

Of course, my experience is very limited, but it would be interesting to know if in other places the difference has been observed. We may, in the last district, quite well conceive that the intake of fluids deficient in salts, and food likewise poor in this respect, the fluids of the body, being low in mineral content, dissolve from the bones the salts necessary for their stability, thus producing the disease of osteitis deformans.

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RESUSCITATION AFTER APPARENT DEATH.

IN view of the case reported in the BRITISH MEDICAL JOURNAL by Mr. G. R. A. Armstrong (January 28th, 1922, p. 141) the following notes may be of interest:

A boy, aged 15 years, was admitted to the Manchester Royal Infirmary suffering from a right-sided empyema. His general condition appeared satisfactory and operation was carried out shortly after his admission.

The patient was anaesthetized with the usual A.C.E. mixture and the operation commenced at 6.20 p.m. Five minutes later, when the periosteum was being separated from the rib, it was found that both respiration and the heart beat had ceased. The pupils were widely dilated, the patient was a deathly pallor and appeared to all intents dead. Artificial respiration was instituted and the head lowered, but met with no response.

At 6.33 p.m. the abdomen was opened through the left rectus muscle and bimanual cardiac massage carried out; at the same time an injection of 1 in 1,000 adrenaline was made into the heart, artificial respiration being continued meanwhile. At 6.40 p.m., fifteen minutes after it had ceased to beat, the cardiac rhythm restarted with slow strong beats. The massage was discontinued and the heart beat ceased immediately, but restarted when massage was resumed and then became automatic. Voluntary respiration started ten minutes later, the corneal reflex returned, and the operation was rapidly completed. About one hour later generalized convulsions appeared at intervals of two minutes, and these increased in frequency until at midnight they came on with every second breath. Nothing appeared to control them; the pulse became more rapid and weaker until 1.30 a.m., when the patient died.

A *post-mortem* examination on the following day showed that, apart from the chest condition, the organs appeared healthy. There was no bleeding into the pericardium along the puncture track. Microscopic examination of the brain showed no demonstrable lesion in the cells of the cerebral cortex.

We find, therefore, in this case that automatic action of the heart was stopped for fifteen minutes. Animation was suspended for a similar period, but ultimately signs of cerebral irritation supervened, as the result of cerebral anaemia from stoppage of the circulation.

It would appear that the highly specialized tissues of the central nervous system could not stand deprivation of the blood supply for a period of fifteen minutes, and irreparable damage was done to these tissues. Cases of this type are fortunately rare, and successes after cardiac massage still more uncommon. Yet with increased knowledge of the method and its earlier adoption we may perhaps look for happier results in the future.

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INTRACTABLE VOMITING DUE TO CEREBRAL SYPHILIS.

A MARRIED woman, aged 48, complained of persistent vomiting of frothy matter, which had persisted for many months, unrelated to food in time, quantity, or quality. The retching commenced usually in the early morning and continued until lunch time at irregular intervals. She also complained of general weakness and flushings, giddiness and fainting attacks.

Such a history naturally suggested a climacteric causation, but examination of the patient revealed several unusual symptoms. She was anaemic and looked ill; the pulse was weak and rapid (pulse rate 120); examination of the abdomen was negative, and her other organs appeared to be normal. The central nervous system was in every respect normal, with the one exception that pin-hole pupils were present. The knee-jerks were slightly increased. There were no sensory or paretic changes, and indeed nothing to suggest a syphilitic causation beyond her pupils. The optic discs appeared to be normal.

On vaginal examination a large fibroid uterus was found, and as it was supposed that this might be the cause of some of her symptoms it was removed, total hysterectomy being performed. The only result was apparently to increase her discomfort, so far as the sickness was concerned. The surgeon was again called in for further advice, but his diagnosis was that the sickness was mainly of a functional nature.

A variety of medicinal preparations were subsequently tried, but without success. The suspicion that the condition was due to some cerebral lesion was eventually confirmed by a strongly positive Wassermann reaction given by the cerebro-spinal fluid; the blood gave a negative result. The effects of four intravenous injections of neo-salvarsan, commencing with 0.2 gram, were remarkable. The vomiting ceased almost at once, and the patient was able to take solid food. Her condition after four injections has been so greatly improved that she is now able to do her ordinary household work, and to go out daily by herself.

The case seems worthy of record on account of the difficulty in diagnosing her malady correctly, owing to the absence of any signs of cerebral syphilis beyond the contracted and inactive pupils. This symptom led to an examination of the blood as soon as she came under my observation, but as the blood was reported to be negative for the Wassermann test, the idea of syphilitic causation was unwisely neglected until everything else had been tried without success.

Southsea. R. HAMER HODGES, M.B.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

YORKSHIRE BRANCH: LEEDS DIVISION.

A MEETING of the Leeds Division of the British Medical Association was held on January 12th. Before the meeting the members of the Division visited the Armley School Clinic, where they were conducted round by Dr. Algernon Wear, and much interest was shown in the different departments. The meeting was then held at the Medical School, Leeds.

SCHOOL MEDICAL WORK.

Dr. WEAR read a paper on "Some aspects of school medical work." He said that school medical inspection dated back some eighty years. The first country to make a start in this direction was Sweden, in 1830, and by 1868 all Swedish schools were medically inspected. While the idea was gradually taken up by other countries, England did not really wake up to the meaning of school medical inspection until about 1905; the chief cause which led to the adoption of a scheme by this country being the result of a Royal Commission on physical training in Scotland in 1903, which showed that deplorable conditions existed among school children. The School Boards of London and Bradford had taken action in 1891 and 1893 respectively, and by 1905 school medical officers were appointed by seventy-nine different local authorities. The Education (Administrative Provisions) Act of 1907 made it the duty of all authorities to provide medical inspection, and since that date many other Acts have been passed affecting the school medical service, practically the whole of which had been consolidated into the Education Act of 1921.

The Leeds System.

School medical inspection in Leeds, continued Dr. Wear, is carried out by 8 full-time and 3 part-time medical officers, 6 dentists, 27 nurses, 24 clerks, and several dental attendants; the dental attendants are trained by us, and act as dental nurses and clerks. In our school medical work the main object is to make the school children cleaner and healthier, and by that means to raise the standard of health of the coming generation. The examination is comparatively simple, and occupies about seven minutes, or twenty per service. There are 120 schools in the city and 85,000 children on the roll, and three routine examinations are carried out for every child—on entering school, on leaving school, and when 8 years of age. Teachers may bring forward any child for examination, and all children found defective have to be re-examined, usually six weeks after the routine examination. The dentists periodically visit each school, and enter treatment on record cards. Nurses visit all schools twice a year and examine all children as to cleanliness. Parents present at medical inspections are personally informed, and subsequently get a stereotyped notice: "Your child has been found to be suffering from so-and-so, and you are advised to obtain medical advice."

For administrative purposes the city of Leeds is divided into six districts, each of which contains an approximately equal number of schools and children, together with a clinic. Each district is in charge of a medical officer with a number of nurses, the nurses assisting and carrying out minor treatment. The medical officer does all the examinations and re-examinations in his own schools, and attends his clinic two or three afternoons a week. The clinics vary in size; the largest has 57,000 attendances a year and the smallest 16,000. The total attendances for all purposes at all the clinics for the year 1920 was about 190,000. The minor ailments treated are discharging ears, blepharitis, impetigo and other skin diseases, and verminous heads and bodies. Eye work, including refraction and provision of spectacles, and massage and dental work, are also carried out. Before the days of clinics such work probably remained undone, or was very badly done at home. None of this treatment is beyond our scope, as none of it would be undertaken by medical men, and would still be carried out in the home as of old without necessary supervision. In addition to the six clinics noted, there is also a seventh clinic, situated centrally, at which special cases of all kinds attend for more thorough examination, such as mentally defectives, blind, deaf, epileptic, cripples, and tuberculous cases. Here there are various departments—eye, nose, throat, dental, massage, and *x*-ray treatment for ringworm. At this clinic there were 19,000 attendances in 1920. Dental work is carried out at four clinics, and all extractions are under gas anaesthesia.

The aim of the school medical work is mainly preventive, the parent being advised to take the child to a medical practitioner for treatment. The school medical officers want the fullest help and the trust of the general practitioner.

Treatment of Ringworm.

Dr. L. A ROWDEN gave an account of the treatment of ringworm. The *x*-ray treatment by the single dose method, he said, was first described in this country by Sabouraud, in a paper published in the *British Journal of Dermatology* in June, 1906. Dr. Rowden treated his first case of ringworm in July, 1906. To be successful the technique had to be perfect and the aim was complete depilation of the hair within three weeks. If the dose was too small the hair failed to fall out, and if too great the hair failed to grow again and a permanent alopecia resulted. If the hair failed to fall out, it was not safe to give a second dose till several months had elapsed. The dose was measured by means of a colour test, the Sabouraud pastille. Dr. Rowden did not like to treat children under 8 years, chiefly because it was difficult to keep the head still. The skin should be free from inflammation or suppuration, no metallic ointments, such as zinc, copper or mercury should have been used, on account of the danger of dermatitis and baldness. The hair should be clipped off short all over, not shaved, then when the hair begins to fall out it can be gently removed, put into a paper bag and burnt, and the diseased area wiped clean with spirit on cotton-wool. Caps, not skull caps, should be worn and boiled daily; the cap should cover the ears and back of neck and be fastened under the chin. All material possibly infected should be boiled or destroyed.

The scalp was free from infection in from three to five weeks. Regrowth of hair took place in from three to six months; the new growth was thicker, coarser, darker, and more curly.

For after-treatment an ointment of half a drachm each of sulphur and salicylic acid in an ounce each of vaseline and adeps lanae was used.

There were two ways of applying radiation to the scalp: (1) By hexagonal-shaped glasses or the honeycomb method. This was the best method, but tedious, especially useful in single patch cases. Seven or eight cases could be done in a morning's work of three and a half to four hours. (2) Adamson's method, in which the whole scalp was done in five areas. In this method there was difficulty on account of uneven surfaces, of keeping the

rays applied at right angles, and consequent danger of over-action at parts and causing a bald hot-cross-bun shaped area.

Dr. Garrett, M.O.H. of Cheltenham, had described the iron treatment of ringworm in the BRITISH MEDICAL JOURNAL for February 22nd, 1913 (p. 390); and Dr. Rowden said that he had now largely given up *x*-ray treatment, and used the iron treatment for most cases.

The scalp should be freed from scurf and grease by washing with antiseptic soap spirit, then swab twice with petrol on pledgets of tow. The head must be kept away from naked lights. The liquor ferri perchloridi fortior (*B.P.*) should be used, dabbed or pressed in with a brush until the scalp is thoroughly stained with it. Apply once daily for three days, then every other day for three times, and then once a week for three times. Dr. Rowden has modified Dr. Garrett's distribution of the nine times of application to every other day for three times, and then every third day for six times.

Avoid washing the scalp after the treatment has begun, as washing readily removes the soluble perchloride. It will usually be found that a cure has resulted. If left alone, the iron-stained scurf and epidermis will come away in the course of a few days, leaving a healthy scalp. The same ointment may be used for after-treatment as after *x* rays. Dr. Garrett says it is not absolutely necessary to cut the hair except over the affected patches. An occasional prophylactic application of the iron may be made to the parts unaffected; the child may go to school.

Dr. Rowden holds that to ensure success the medical man must personally supervise the treatment. It is important that all scabs be removed before each application. An old linen cap should be worn. He directs that the scalp be shaved, then washed with antiseptic soap spirit and dry well; swab with petrol on cotton-wool twice over the affected areas and let dry; then with cotton-wool swab press in the iron into the diseased areas, let dry, and cover head with old linen cap.

This method was suitable for young children, and when the disease was extensive and no expensive machines were required. Many fewer cases of ringworm were seen in Leeds, possibly because of treatment at school clinics. In 1910 there were 900 school cases of ringworm.

Professor M. J. STEWART then read a paper on pathological aspects of sarcoma of bone. He pointed out that such tumours were of low malignancy and metastases were very rare indeed; recovery after removal was likely if the growth was thoroughly and widely excised, and not merely scraped.

Pins Removed from Bladder and Prostate.

Dr. JAMES ALLAN showed a urinary calculus removed by the suprapubic route from a patient, a man aged 45 years, in the Leeds Township Infirmary, of which, it was afterwards found, four large brass pins formed the nucleus. The calculus was egg-shaped, 2¼ by 1¼ inches.

The patient said that some twenty years ago the pins were introduced into his bladder by a woman who had a grudge against him, when he was unconscious. Some of the pins were removed at the time, and since that time a pin occasionally had come away with the urine. When he was admitted to the Infirmary he had been for a considerable time in much distress from bladder trouble and was contemplating suicide. On passing a metal bougie about two months after the operation a metallic object was detected at one side of the prostatic urethra and partly embedded.

The operation wound, which had not quite closed, was opened and the metallic object found and removed. It was found to be a large brass pin 1¼ inches long, with a head and fairly sharp point, somewhat bent at the junction of the upper third with the lower two-thirds, and slightly corroded. Six weeks later a similar pin came away in the urinary stream; it had probably been disturbed by the last operation. This pin was the same size as one previously removed, with a similar bend and with a thin crust on it.

An *x*-ray examination was then made by Dr. Rowden to see if the man had any more pins in him, and the radiograph showed a pin in the prostatic region. This was removed by the perineal route; it was found embedded in the prostate, parallel with and in front of the urethra, with the head towards the bladder. This pin was similar to the others, but quite straight, slightly eroded and encrusted. The patient made a satisfactory recovery.

SOUTH WALES AND MONMOUTHSHIRE BRANCH: CARDIFF DIVISION.

A CLINICAL meeting of the Cardiff Division of the British Medical Association was held in the King Edward VII Hospital, Cardiff, on January 18th, the Chairman, Mr. WILLIAM MARTIN, being in the chair. The meeting was entirely devoted to general surgery, and a large number of most rare and interesting surgical cases and specimens were obtained.

Mr. HERBERT G. COOK demonstrated a cyst of the spermatic cord. The boy had been sent in with inguinal hernia, but was sent home, no hernia being found, and came back in the present condition. The cyst had been excised and was unilocular containing about 4 to 6 grams of clear fluid.

A case of intussusception was reported and a specimen shown, removed from a male aged 30. The case was a chronic one and three operations had been performed: (1) The condition was irreducible and enterectomy was performed; (2) the condition developed again, when laparotomy and reduction was performed; (3) after some months it again developed, was irreducible, and enterectomy was performed. The man made a good recovery.

Mr. CORNELIUS GRIFFITHS showed an extreme case of molluscum fibrosum. The entire body and limbs were covered thickly with these swellings of various sizes, but all of soft consistency. The hands and feet were extensively involved. There was some pigmentation of the skin. The condition had been present for fifteen years and caused no trouble, the patient seeking advice for an enlarged prostate.

Mr. GEARY GRANT showed: (1) A specimen of intussusception in a young child; rupture of the bowel had occurred and enterectomy had been performed. The child died. (2) Osteogenesis imperfecta in a female child of six weeks; the legs and arms were very bent, and an umbilical fistula was present; *x* rays showed an appearance like multiple united fractures. (3) Prostatic calculi; prostatectomy had been performed with good result; the condition was rare, Young reporting only eleven cases.

Mr. WILLIAM MARTIN showed a case of anthrax. This was about the angle of the jaw on the left side; the glands were enlarged, but after free excision of the primary focus these subsided, and the wound was now granulating healthily. He also showed a sarcoma of the neck in a lad; the case was inoperable, but was being treated by radium. The circumference of the neck had been 18½ inches before treatment was commenced, and after three applications of radium was now 13½ inches; the local condition thus showed improvement, but *x* rays had demonstrated secondary growths in the lung.

The meeting was very successful, and was the first of a series of clinical meetings, each to be devoted to a separate speciality. The cases and specimens were freely discussed by many of those present, and several interesting debates arose.

Reports of Societies.

THE DIAGNOSIS OF GASTRIC ULCER.

AT the Royal Society of Medicine, on January 24th, a discussion took place on the diagnosis of gastric ulcer, the further subject of treatment being reserved for a subsequent evening. Dr. G. NEWTON PITT presided, and there was a very large attendance, many standing throughout the two-hour discussion.

Clinical Signs.

Dr. CHARLES BOLTON, in opening, showed a number of lantern photographs to illustrate the different types and phases of gastric ulcer and its various stages of healing. There were three principal means, he said, by which the presence of gastric ulcer could be recognized: (1) The occurrence of accidents—that is, haemorrhage and perforation—to which the condition was liable to give rise; (2) the disorders of the gastric function which it occasioned; (3) the characteristic deformity of the stomach as made out by the *x*-ray examination. The amount of blood lost in gastric ulcer was generally considerable, but not invariably so, and an unusually small haemorrhage might be followed after an interval by a profuse one. The bleeding in chronic gastric ulcer nearly always was concurrent with considerable pain, in which the diagnosis of ulcer was established. It was an unusual thing for a chronic ulcer to declare itself by profuse haemorrhage as the first symptom. It was essentially the chronic ulcer which gave rise to pyloric hypertension or spasm. The acute ulcer did not cause such disturbances unless it happened to be situated near one or other orifice. Pain in gastric ulcer must be ranked very high as a diagnostic sign. Its leading features were its situation in the epigastric region, its tendency to be severe, sufficient occasionally to waken the patient at night, and its occurrence during the digestive process, ceasing after the stomach was emptied, either naturally or by vomiting. Its character was generally unaltered in the one patient.

Sir CUTHBERT WALLACE, who could not be present, wrote that the subject of gastric ulcer had suffered from dual control. The physician saw the beginning, and the surgeon the end, and the former, while he had the opportunity of comparing the symptoms with the different lesions, had not the same opportunity as the surgeon of handling the lesions

themselves. The clinical history was all-important in arriving at diagnosis, and other methods of examination were important in so far as they could confirm or refute the opinion arrived at on clinical signs. Pain was the leading feature, though it was doubtful what caused the pain, whether the friction of the stomach contents, the action of the gastric juice, or the irregular muscular movements. Most people who suffered from chronic ulcer referred the pain to the epigastrium, but the situation of the pain or tenderness was of no value in locating the ulcer. If the taking of food caused pain there was a distinct interval between the meal and the commencement of the pain, and this interval was longer the nearer the ulcer to the pylorus. Vomiting was a fairly constant symptom, preceded by pain, which it often relieved. He had not sufficient experience to give an opinion as to the value of fractional meals. High HCl usually accompanied an ulcer in the pylorus. Sometimes *x*-ray examination was helpful for showing—most readily on the profile of the stomach—an actual break in the outline of the shadow at the site of the ulcer. The rays also indicated cicatricial deformity, the filling defect often associated with carcinoma, and the abnormality of the duodenal cap. If there was no constriction and no abnormality of form it was unlikely that a condition was present which could be remedied by the surgeon. The diagnosis as between ulcer and carcinoma was very difficult, if possible at all without operation and pathological examination.

Dr. W. GORDON dealt with a number of clinical points. The onset of diabetic coma might simulate gastric perforation. In subdiaphragmatic abscess leucocytosis might help diagnosis considerably. A latent abscess would sometimes cause surprisingly little disturbance. Syphilis as a cause of gastric ulcer was uncommon in this country, but should not be forgotten. The frequency of ulcer as a forerunner of cancer in the stomach had lately been over-estimated. Such instances were relatively rare, and he was glad to find radiologists in agreement on this point. As regards diagnosis generally, he thought that a recumbent diminished cardiac dullness made carcinoma more likely, though in conditions of extreme weakness from starvation he had found a similar recumbent dullness. In gastric ulcer cases, except in instances of surgical urgency, abdominal exploration for diagnostic purposes was a procedure only justifiable when all other means of diagnosis had failed. Abdominal exploration meant abdominal adhesions, and these were to be avoided.

Dr. J. A. RYLE thought that as far as possible the patient should be examined when pain was present, and this raised the question whether they might not try more frequently to induce pain in a patient for the purpose of examination. He had been paying some attention to the reflex phenomena accompanying ulcer, and had found deep tenderness present in from 60 to 70 per cent. of all cases of active ulcer examined; most frequently this tenderness was in the midline, but in duodenal ulcer very commonly over the right rectus. He also indicated the frequency of other signs—increased abdominal reflex, for example, in 16 per cent. Not all these cases had been examined during pain, and if such signs were found when active pain was not present, how much more likely were they to be found when pain was present! The speaker also touched on the value of the hypersecretory curve in ulcer in the duodenum or near the pylorus. The curve was seen in conditions other than duodenal ulcer—in a small proportion of normal subjects, for instance, and also in appendicitis, and gall stones, and in tabetic crises—but it did not as a rule show the distinctive features which it exhibited in duodenal ulcer.

Chemical Estimation.

Dr. J. H. RYFFEL confined his remarks to the fractional meal introduced by Einhorn and developed by others. He showed some typical gastric analysis curves illustrating the acidity and free HCl obtained in duodenal and pyloric ulcer. Unfortunately for diagnostic purposes, in the case of ulcer in the lesser curvature, the degree of acidity was about normal or below normal, and the rate of emptying of the stomach was also approximately normal. A study of the curves, therefore, would not suffice to distinguish gastric ulcer proper as opposed to pyloric ulcer, and the blood had to be examined; but here again there was a difficulty, because aspiration was liable to cause some bleeding, and thus it became necessary to refer to the examination of the faeces for blood, because blood would not be found in the faeces after a test meal if the bleeding was due to trauma. He worked on a large enough scale to examine the faeces spectroscopically, investigating in this manner the faecal extract for acid haematin and haematoporphyrin. In pyloric ulcer, when the bleeding was consistent, one could practically always find haematoporphyrin present in the faeces, and it was not found in the faeces of a normal person on full diet. Gastric ulcers were variable in the results so far as examination for blood was concerned, but in pyloric and duodenal ulcer the presence of blood was consistent.

Dr. G. W. GOODHART desired to know how users of the fractional test meal decided that blood was due to a condition of the stomach and not to trauma. In his experience he had rarely found anything that looked like blood with the fractional test meal.

Dr. IZOD BENNETT said that his experience of gastric analysis went to show that one got no disturbance of gastric secretion in this condition except such as might result from derangement of the normal function of the pylorus.

X-ray Examination.

Dr. A. E. BARCLAY discussed the technique and results of *x*-ray examination. The patient should be prepared by having the bowels thoroughly cleared two days beforehand, and should have no food for at least three hours before examination. The opaque meal employed for outlining the stomach was a mixture of barium sulphate (3 to 4 oz.) in half a pint of milk, to which was added a little raspberry syrup and a teaspoonful of sodium bicarbonate. Just before the opaque meal the patient ate a spoonful of toasted breadcrumbs, the object being to irritate any ulcer which might be present, and in this way to produce spasm. The liquid meal demonstrated the shape of the cavity, but was of little value as a test for motor function; hence on the next day the patient should have a real food-test meal, which was given five hours before he came for examination. The food was barium sulphate or bismuth carbonate mixed with bread and milk or porridge. Frequently at this second examination another liquid meal should be given to confirm what had been seen on the previous day. The examination was conducted for the most part in the upright position. The observer must make the most painstaking palpation of the abdomen. Any method would show the obvious, but no method would show the fine detail that was necessary for the diagnosis of certain lesions if it did not include a very careful palpation. The *x*-ray negative sometimes showed points which had been missed by the screen examination, but he did not recollect a case in which the final diagnosis had been made from plates. The demonstration of the actual break in the outline of the shadow cast by the ulcer was the direct evidence on which a definite opinion of ulceration could be given. Without this direct evidence, which was becoming more frequent with the increase of experience and the improvement in apparatus, there remained only deduction from indirect evidence. The diagnosis of duodenal ulcer depended on the establishment of the fact that there was definite deformity invariably present; this deformity was little guide to the size of the ulcer, and was due to a localized contraction not seen on the operating table. He could not yet distinguish between adhesions and ulcers of the duodenum. Dr. Barclay went on to discuss in detail the hour-glass contractions, many of which, he said, were purely spasmodic; also delays in emptying, which did not necessarily mean a pyloric lesion, and atony of the stomach, which was not necessarily a pathological state, and might be accounted for by the mere distaste for the opaque meal. The peristalsis of the stomach might furnish some clues. The wave might be interrupted at some point; this was more suggestive of a growth than an ulcer, though occasionally it was noticeable in cases of indurated ulcer. He urged that the operation theatre and the *post-mortem* room were of the utmost importance to the radiologist, and that often his presence in the former might be of service to the surgeon.

Dr. J. M. REDDING added a few words on the *x*-ray diagnosis. For the direct method the essential was a fluid meal which would hold barium in good suspension. He relied on radiograms for the final diagnosis rather than on the screen image. One helpful feature was the consistency of any deformity, whatever shape it might assume. A point to insist upon was that the area under suspension should constantly show a deformity of the same character.

Morbid Anatomy.

Dr. BERNARD SPILSBURY, who showed a number of specimens, said that the digestive activity of the gastric secretion undoubtedly played a very important part in

maintaining the morbid process. When the secretion was very active the destruction was pronounced and the ulcer enlarged; when the activity was arrested the destruction was replaced by processes of repair and regeneration of the tissues. In the destructive stage the ulcer had sharply cut margins and the base was fairly smooth. As the destructive process diminished the margin lost its punched-out appearance and became rounded. In the stage of repair the ulcer became smaller and the margin much thickened, so that it assumed a cup shape in section. The destructive stage was the one seen in the *post-mortem* room in most cases in which ulceration was the cause of death, and the regenerative stage was the one seen in specimens removed by the surgeon after more or less prolonged medical treatment. He gave a description of the microscopical appearances, and added that it was comparatively very rare to find malignant disease following upon ulceration. The origin of cancer from peptic ulcer must be looked upon as an uncommon event.

A Comparison of Methods.

Dr. NEWTON PITT, from the chair, in closing the discussion, recalled that thirty years ago, in Fagge's *Principles and Practice of Medicine*, the question of duodenal ulcer was simply referred to incidentally and not discussed at all. Between 1890 and 1900 the improvement in diagnosis was due largely to the surgeons who found the ulcers; between 1900 and 1910 the great advance was in the chemical estimation of the stomach contents; between 1910 and 1920 the progress had been chiefly on radiographic lines. He was sure that there was a great deal more still to be learned from the fractional meals. No one had compared the respective merits of these methods of diagnosis that evening. In the early stages of a case he thought that more was to be learned from clinical examination than from the radiographic picture, whose help was chiefly valuable at a later stage when the ulcer became large and pouched. What was the relative proportion of accuracy in diagnosis arrived at by these various methods? At the Mayo clinic last year the proportion of accurate gastric diagnosis by *x*-ray examination was said to be 95 per cent. Perhaps in a chemical examination the proportion of mistakes was greater, but, fortunately, the cases which presented difficulty by one method were cleared up by another. It was difficult to find out from surgeons what was the proportion of cases in which they operated after a diagnosis of gastric or duodenal ulcer and found something else. It was possible that not an inconsiderable number of abdomens were opened for ulcer and no ulcer was found nor any lesion, and perhaps 5 or 10 per cent. in which carcinoma or gall stones or some other lesion was found. It would be very useful to get a general statistical review of the experiences of the London hospitals, but merely to look through the reports furnished no information, because errors in diagnosis were rarely entered.

PREVENTION OF DIPHTHERIA.

AT a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine, on January 27th, when the President, Dr. A. K. CHALMERS, was in the chair, a discussion on the Schick test and the prophylaxis of diphtheria was initiated by a series of short papers.

Dr. S. MONCKTON COPEMAN, F.R.S., exhibited a series of lantern slides of arms showing various phases of the reaction. He then briefly described the arrangements made to carry out a series of tests in an institutional school at Mitcham; he referred to the practical absence of constitutional reaction to the test and the importance of a control.

Dr. EAGLETON read a paper on the bacteriological examination of 300 school children. During the wane of a diphtheria epidemic in an institutional school at Mitcham, nose and throat swabs were taken by Dr. Okell and himself from all the inmates; 329 children were so examined (Series I), and the process was repeated eight weeks later on 327 of these children (Series II). Series I showed a carrier rate of 5.47 per cent., Series II a rate of 1.8 per cent., the diagnosis of the diphtheria bacillus being made on morphological grounds only. In Series I virulent diphtheria bacilli were isolated five times and avirulent three times. In Series II no virulent bacilli were isolated, but avirulent diphtheria bacilli four times. Comparing the results with those obtained in a series of diphtheria convalescents, and bearing in mind the pitfalls met with in routine morphological diagnosis of diphtheria bacilli, he felt that a knowledge of the percentage of contacts from whom virulent diphtheria bacilli could be isolated was of more value than the finding of the "carrier rate" by a method of diagnosis depending solely on morphology.

Mr. GLENNY read a paper on laboratory control of the Schick test and active immunization. The standard adopted by Schick of 1/50 M.L.D. of toxin as a test dose for the test was not, he thought, ideal. The test was quantitative, depending upon neutralization of toxin by antitoxin. Antitoxin also neutralized toxoid, and as toxoid was present in varying proportions in different batches of toxin a standard depending upon toxin content alone would give different results with different toxins. It was possible to produce a toxin of which 1/50 M.L.D., as the Schick test dose, would condemn as susceptible individuals with as much as 1/10 unit of antitoxin per cubic centimetre of blood, while another toxin would pass as immune those possessing only 1/100 unit. Until a more satisfactory standard involving neutralization of antitoxin was adopted it would be necessary carefully to choose the toxin to be used for the test. Toxin in high dilution being very labile, each preparation must be controlled by animal tests. Two methods were in use: (1) The determination of the minimal reacting dose, (2) the titration against antitoxin. Both methods involved intracutaneous injection into guinea-pigs. The second of these methods would form a satisfactory standard for the dose to be adopted for different toxins. Doubtful Schick reactions could be controlled by determining the antitoxin content of the blood of the individual under test. For such determination the usual intradermic method of testing was used, with slight modifications necessary in dealing with small quantities of blood and low antitoxin content. The preparation of toxin-antitoxin mixtures for active immunization needed careful control. According to the American authorities the mixtures must be shown to be non-toxic for guinea-pigs in doses of 1 c.cm., but in addition the immunizing properties should be tested on guinea-pigs and rabbits. When such methods of testing antigenic values were established, the immunizing values of the mixtures might be increased by selection of toxin used.

Dr. R. O'BRIEN read a paper describing the results obtained from the Schick test and the subsequent active immunization. Of 300 children, 31 per cent. gave a positive result when tested by the Schick method. This figure closely resembled that found by Park and Zingher in New York. Repeated tests on the same subjects gave the same results. Of readings made on the first day, 95 per cent. agreed with the final readings of the fourth day. When readings were recorded as "doubtful," it was probable that nearly all the subjects were really immune, assuming that the toxin dilution used was of full potency and the injection technique correct. Eighteen children who had had diphtheria some weeks earlier were tested; three gave a positive Schick response, two a negative, and thirteen a negative (and pseudo) reaction. Five carriers of virulent bacilli were tested, and all gave a negative reaction. It was probable that all true carriers of virulent bacilli gave a negative Schick response; if positive, they were incubating the disease and would suffer from it in the immediate future. Avirulent carriers might give a positive or negative reaction; of seven tested, one gave a positive Schick reaction and six a negative. All children giving a positive Schick reaction were immunized with toxin-antitoxin mixture. Ninety-nine were tested eleven weeks later, and two only gave a positive response; the remainder were immune. These two were reinoculated, and now gave a negative Schick reaction. Practically no general reactions occurred; local reactions were common, but caused very little interference with the children's activities.

A communication from Sir GEORGE BUCHANAN (who was prevented by an attack of influenza from attending) was then read. Having referred to the report recently issued by the Ministry of Health (noticed in our issue of December 10th last, p. 994), he remarked that residential child communities of all social grades appeared to be most suitable fields for the introduction of active immunization. "Dr. Copeman and Dr. O'Brien," he continued, "have shown how the method has been applied at an institution where the authorities felt it incumbent on them to make use of new knowledge to protect the children under their care. At this institution 100 per cent. of natural or induced immunity, in the sense of the Schick test, has been secured. If, as I hope, the system is maintained with new arrivals, and records are kept, we should obtain in course of time a valuable piece of independent evidence in our own country of the degree and duration of the protection obtained. We have already good reason to expect

that it will be high and will last substantially over many years, and we seem to be justified in promoting the adoption of the method in any other similar institution in which it can be undertaken with necessary thoroughness and skill. The question whether the method should or should not be recommended by public health authorities in such institutions is so important at the present time that I hope that if any objections, theoretical or practical, can be made, they will be brought out in the discussion and fully considered." Sir George further remarked that although theoretically it would seem best to initiate the process at a time when the institution was free from cases of diphtheria and the disease was not epidemic, practically it might be difficult to secure the consent of parents or public authorities. He concluded by asking whether (*a*) the staff of an isolation hospital should not always be subjected to the test and the positive reactors offered immunization, and (*b*) whether the reaction ought not to be demonstrated in the ordinary instructional courses of medical students.

Professor C. J. MARTIN, F.R.S., congratulated the authors upon their admirable piece of team work, and wished to emphasize the importance of technique and material in the use of the test and in the application of active immunization. Dr. TOPLEY commented upon the apparent rarity of a "combined" positive reaction (that is, a positive and pseudo-reaction on one arm and a pseudo-reaction on the control arm) and raised a difficulty as to the relation between active and passive immunization; he asked whether any statistical information was available as to the comparative frequency of relapses or second attacks before and after the introduction of antitoxin. Dr. GOODALL said that relapses certainly occurred both before and after the introduction of antitoxin, but he would not like to say without examination whether the proportional frequency had changed. He attached much importance to this investigation and congratulated the authors. He hoped that ultimately an administrative consequence would be the relief of pressure on hospital accommodation, urgently required for other cases, due to bacteriological cases of diphtheria. As to instruction, he demonstrated the Schick test to his students, and had no doubt that his colleagues did the same.

Dr. HEATH criticized the terminology used. Dr. MANBY emphasized the difficulty, if not impossibility, from the administrative side of using the method in the absence of cases or public fear of diphtheria. Dr. GREENWOOD said that accurate statistics of second or third attacks of infectious diseases were unobtainable in most cases, and would be, when obtained, very difficult to interpret. Dr. CARNWATH pointed out the need of further research, and of answering specific questions as to the duration and degree of immunity conferred by active immunization, standardization, and allied questions.

The PRESIDENT, having read some notes on the results of Schick tests carried out in the Belvidere Hospital, Glasgow, inquired whether pyrexia contraindicated the test. In the course of a general reply Dr. O'BRIEN observed that the quite reasonable criticism of members of public bodies that these tests were done on the children of the poor, would be met if the authorities of a preparatory school for the children of the wealthier classes would consent to such an investigation as that carried out at the Mitcham schools. Dr. COPEMAN said that he was glad to be able to state that such a proposal had been favourably received by the authorities of a preparatory school, and steps were being taken to invite the consent of parents. With regard to the President's question, he did not think the reaction was interfered with by pyrexia, but in his Bristol experience he had found definitely severe pseudo-reactions in some cases of diseased children tested (congenital syphilitics).

The Section passed a hearty vote of thanks to the authors of the papers.

A CASE RESEMBLING LEUKAEMIA.

AT the meeting of the Medical Society of London on January 23rd Dr. F. J. POYNTON, in a paper, gave details of a case which resembled leukaemia, but had unusual clinical and pathological features. It was a case of a woman, 31 years of age, whose breast had been removed for interstitial mastitis. After the operation she suffered from pains in the limbs, painful sore throat, weakness, and wasting, and was readmitted to hospital five months after operation almost pulseless. At this time the liver edge was 2 inches and the spleen 1 inch below the costal margins. The right kidney was very large, and the left also enlarged; the heart was feeble, but not diseased. Red blood cells were 5,460,000 and white 7,000 per c.cm. The differential count showed 16 per cent. polymorphonuclears and 82 per cent. mononuclears, of which 73 per cent. were lymphocytes. The case was diagnosed as lymphatic leukaemia. The remarkable features were the extreme variations in the size of the liver, spleen, and kidneys, and in the blood pictures. The spleen and kidneys rapidly enlarged to the umbilicus, and as rapidly diminished until, a month after admission, the liver, spleen, and left kidney could not be felt. The temperature fell to normal, and there was wonderful improvement. The red blood cells were now 2,000,000 and the white 6,600 (polymorphonuclears 46 per cent. and mononuclears 54 per cent.). Six weeks later there was an even more rapid failure in health. Within less than a week the liver and spleen enlarged to the level of the umbilicus, the right kidney became more enormous, and the left very large, the red cell count rose to 6,000,000, the white cell to 12,000 (polymorphonuclears 46 per cent., mononuclears 52 per cent.), and death occurred, hastened by rupture of the spleen and haemorrhage into the abdomen.

Dr. J. W. MCNEE, who carried out the pathological examination, said that microscopically the outstanding features of the case were (1) the presence of a large mass of whitish tissue, occupying the anterior mediastinum and involving also a large part of the left pleura; (2) enormous enlargement of kidneys, one of which weighed 29 oz.; (3) considerable enlargement of spleen, which measured 9 inches in length; (4) considerable enlargement of liver; (5) alterations in marrow of long bones. In some organs, notably the liver, the histological changes were those seen commonly in lymphatic leukaemia, the portal tracts being infiltrated with large collections of small lymphocytes, and the vascular capillaries containing also a considerable excess of lymphocytic cells. In the kidneys, spleen, and the mass of the anterior mediastinum the changes were different and resembled more closely lymphosarcoma. An abundant, newly-formed connective tissue meshwork replaced the greater part of the normal structure of these organs, and in the meshes of this framework abundant small cells of lymphocytic type were contained. The remaining breast showed almost identical changes to those noted in the kidneys and spleen. He regarded the case as one of an atypical group standing somewhere between leukaemias and lymphosarcomas. No adequate explanation could be offered from the pathological side to account for the extraordinarily sudden shrinking of the liver, spleen, and kidneys. Two possible explanations might be thought of—namely, that the lymphocytic cells passed suddenly out from the organs into the blood stream, or that the cells were destroyed *in situ* in the organs involved; but the blood counts and the histological picture lent no support to either of these theories.

Sir HUMPHRY ROLLESTON thought that the case might correspond with Sternberg's leucosarcomatosis. The case strongly suggested that leukaemia was a form of sarcoma, and that here one had a tumour which was much more on the sarcoma side.

Dr. PARKES WEBER urged the usefulness of examining the mediastinum by *x* rays. In a case of Sternberg's leucosarcomatosis he would never have arrived at the diagnosis but for that method. He instanced several descriptions in literature of analogous cases. Some interesting points would be found in the third edition (1919) of *Blutkrankheiten und Blutdiagnostik*, by Naegeli. The speaker considered that the existence of these so-called leucosarcomatosis cases afforded the very best arguments for supposing leukaemia to be of the nature of a new growth, but if one went so far as that one would have to divide up the leukaemias, because it was almost certain that some cases of acute leukaemia were of the nature of an infectious disease.

Dr. GORDON WARD thought that this was a case of ordinary leukaemia more or less altered and modified by a succession of clinical accidents—operation, heart failure, and so forth—ending in the rupture of the spleen. To talk of malignant disease in connexion with it was to obscure a plain issue.

Dr. POYNTON, in reply, said that the condition of the amputated breast fitted in quite well with the idea that this was a leukaemic condition. He admitted that it was a weak point on the clinical side of the case that there was no close analysis of the urine. Dr. MCNEE could not accept the view that this was a case of Sternberg's leucosarcomatosis. The histology was quite definitely different, and there was nothing in the Sternberg cases of the fibrous tissue stroma which was laid down in the case under discussion.

CAUSES OF DEATH IN VALVULAR DISEASE.

A MEETING of the Royal Medico-Chirurgical Society of Glasgow was held on January 13th, 1922.

Dr. JOHN COWAN made a communication on the causes of death in chronic valvular disease of the heart. In a *post-mortem* series of 100 cases which showed some form of endocarditis at death 19 cases had acute endocarditis and 81 chronic endocarditis. Of these 81 cases of chronic endocarditis 37 showed a superimposed acute endocarditis and 44 did not. Of these last 44 cases, death was due in 21 cases to progressive cardiac failure of unknown origin, in 12 cases to pulmonary lesions, in 4 cases to cerebral lesions, and in 12 isolated examples to starvation, otitis media, over-exertion, acute rheumatism, paroxysmal tachycardia, purpura, and heart-block. Chronic renal disease was present in 25 cases. The most common cause of death in 81 cases of chronic valvular disease was thus acute endocarditis, which obtained in 42 per cent. of these patients. Of the original 100 cases which presented some form of endocarditis at death 56 showed an acute endocarditis.

Mr. G. H. EDINGTON communicated particulars of a case and showed macroscopic and microscopic specimens of sarcoma affecting an undescended testicle, which was firmly fixed in the pelvis between the bladder and rectum. The specimen was from a labourer, aged 49. There were no signs of secondary extensions thirteen months later. Mr. Edington commented on the unusual situation of the organ and drew attention to statistics, as showing special tendency to malignant disease in undescended or malplaced testicle. Mr. G. H. Edington also showed a large urachal cyst removed from a farmer, aged 50. A palpable tumour in the hypogastrium had been present for between two and three years. It was cystic, and resembled the distended bladder, except that it was very fully motile from side to side. There were no visceral adhesions, and although firmly attached to the apex of the bladder, the cyst was comparatively easily enucleated. It measured 13 cm. by 9 cm.; its fluid contents were alkaline and non-albuminous, but gave a marked reaction for urea.

Dr. JOHN ROWAN, in showing a cinematograph film illustrating the mechanism of the refraction of the eye, commented upon the value of this method of teaching many subjects. He also referred to its value in recording methods of operation and the condition of patients from time to time as regards appearance, muscular movements, gait, etc.

INVERSION OF THE UTERUS.

AT a meeting of the Edinburgh Obstetrical Society on January 11th, with the President, Dr. LAMOND LACKIE, in the chair, Dr. HAIG FERGUSON read a paper on inversion of the uterus, of which he had met with four cases; two of them were puerperal and two associated with neoplasms of the uterus, one of the latter being a fibroid polypus and the other an adeno-carcinoma. All were successfully treated by vaginal hysterectomy except one of the puerperal cases, in which the abdomen was opened and the uterus re-inverted after division of the posterior part of the constricting ring (Haultain's method), an assistant pushing the uterus up from below. This case also made a good recovery.

Dr. Haig Ferguson considered that acute inversion was not so uncommon a condition as was frequently supposed, and that many cases were unrecorded. The mortality of acute cases was probably 30 per cent., but if they survived the initial shock and haemorrhage the danger was not immediate, as shock was probably the main cause of death in acute puerperal cases. In dealing with such cases no prolonged attempt should be made at the time to replace the uterus. Such attempts, even if successful, might do more harm than good. Paradoxical as it might seem, patients might die from successful reposition.

The most important point was to strip off the placenta and then plug the vagina with sterile or iodoform gauze, while combating shock, which was often the main cause of a fatal issue. He advised caution in the use of pituitrin in the treatment of shock in such cases, as it might render the subsequent reinversion more difficult. As to reposition after the initial shock and haemorrhage had been successfully dealt with, taxis and repositors were of little use where inversion had existed for any length of time, and their use was not without danger. They might, however, be tried with all care in comparatively recent cases after shock had passed off. Modern treatment of chronic inversion tended towards surgical interference. If the uterus was septic, seriously damaged by previous manipulations, or had undergone fibrotic changes, the vaginal route was indicated. If, however, the uterus had not been seriously damaged, was not septic, and there seemed a reasonable chance of effecting reposition, the abdominal route should be chosen. Operation by the vaginal route had hitherto given the smallest mortality, due to the less degree of shock and less risk of infection. The want of sufficient room to work in could be overcome to a great extent by using Schuchardt's incision or paravaginal section.

Caesarean Section in Multiple Pregnancy.

Dr. WM. FORDYCE read a note on a case of Caesarean section in multiple pregnancy. The patient was a primipara who had been married ten years. For two months before admission she had been more or less of an invalid suffering from great pain, aggravated on lying down, and accompanied by difficulty and pain in micturition. On admission she looked extremely ill, was very breathless and emaciated; there was a small amount of albumin in the urine; the pulse rate was 100. The upper part of the abdominal swelling reached to the umbilicus, and it extended forwards and downwards over the symphysis pubis, forming a conical tumour the apex of which touched the patient's thighs. The vagina was very elongated and the anterior lip of the cervix could be touched with great difficulty. It seemed to lie above the promontory of the sacrum. The posterior lip and external os could not be felt at all. The pelvis was perfectly normal in shape and size. No presenting part could be made out. Delivery *per vias naturales* being obviously impossible, Caesarean section was performed; the uterus was raised up out of its pendulous position, thus enabling the uterine incision to be made on its anterior surface. Two male foetuses, each 7 lb. in weight, were extracted; the first lay longitudinally, the head below, the second behind it and transversely. The uterus contracted well and was readily replaced in the normal position. Nothing could be found to account for the markedly pendulous condition of the uterus.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

A CLINICAL meeting of the West London Medico-Chirurgical Society was held at the West London Hospital on January 13th, with the President, Sir G. LENTHAL CHEATLE, in the chair. Mr. S. SIMMONDS reported a case of ossifying spindle-celled sarcoma in a man aged 31. The tumour had arisen in the thigh in the site of a contusion caused by a large shell fragment three years ago. At operation the tumour was found to be unconnected with bone, but involved the adductor magnus and femoral vessels. It was removed, together with three and a half inches of the femoral artery and vein. The microscope showed the tumour to be an ossifying spindle-celled sarcoma. The patient had recovered without any complication. Mr. Simmonds also showed a case of congenital deformities in an infant aged 8 months, showing (*a*) transposition of the heart, (*b*) absence of the left nipple, (*c*) congenital bands from the left pectoralis major to the internal condyle of the humerus, and (*d*) post-anal dimple. Dr. H. CHAMBERS showed a case of congenital absence of the right upper limb in a man aged 37, showing development only of the fixed portion of the shoulder girdle. The free portion of the arm was represented by a finger-like process of soft tissue attached to the lower part of the skin over the glenoid border of the scapula. Dr. Chambers remarked on the rarity of the unilateral deformity, most cases reported being bilateral. Mr. O. ADDISON showed a branchial cyst in a woman of 35. The cyst had been aspirated and the fluid withdrawn found to be typical of that found in dermoid cysts. Mr. N. SINCLAIR showed a cystic swelling in the neck of an infant aged 1 month, shown for diagnosis. The child's birth had been easy and non-instrumental, and the swelling present since birth. The diagnosis rested between a cystic hygroma or a cyst of branchial origin. He also showed an interstitial hernia associated with imperfect descent of the testis in a boy of 16; and, third, a case of large femoral and inguinal herniae on the same side in a man aged 61. The PRESIDENT considered this a suitable case for operation by his recently introduced subperitoneal method. Dr. J. BURNFORD showed, first, a girl of 16 with sub-acute infective polyarthritis treated by colonic lavage and intestinal antiseptics, with success; and second, a case of retrobulbar neuritis associated with influenza in a boy, aged 8. Mr. R. MAINGOT showed, first, a case of chronic

myositis ossificans traumatica in an ex-cavalryman aged 50. There were multiple lesions in the left thigh and a large plaque in the right. The condition had been accidentally discovered in the course of a routine examination. He also showed a central dislocation of the head of the femur in a man of 50, successfully reduced and subsequently treated by abduction and later by a walking calliper splint. The man had recently been able to return to work.

AN ordinary meeting of the Manchester Clinical Society was held in the Pathological Department of Manchester University on January 20th, with Professor G. R. MURRAY, the President, in the chair. Professor H. R. DEAN opened the meeting by giving a brief summary of the history of the Wassermann reaction, and described the technique of the method pursued in his department, together with the precautions taken against error. Dr. WILLIAM DYSON opened the discussion from the clinical aspect, and pointed out the value and limitations of the reaction as applied to clinical medicine. Dr. MUMFORD, Dr. DIBLE, Dr. SAVATARD, and Professor MURRAY also took part in the discussion.

Reviews.

THE LEGACY OF GREECE.

"I DO not ask that a man shall know Latin and Greek, all I ask is that he shall have known them." Although it may be easy to agree with Sainte-Beuve's remark it is hard to say why we do so; the series of essays edited by R. W. LIVINGSTONE and published under the title *The Legacy of Greece*,[1] is an attempt to solve the problem so far as the study of Greek is concerned. The debt modern civilization owes to Greek thinkers is analysed under various headings. Professor Gilbert Murray discusses the value of Greece to the future of the world, and while it is true that many of the questions he propounds are left unanswered, his general survey is one to set any man thinking. He tells how the geometry of Euclid, the grammar of Dionysius Thrax, and the medicine of Hippocrates have lived into our own times. For him, as also for the artist or poet, the secret of ancient Greece lies in the underlying quality of beauty. This beauty is displayed in the directness, truthfulness and simplicity with which the Greeks say what they want. We admire in the Greeks freedom, reason, beauty, excellence and the pursuit of truth, and we realize that they were the first to formulate these ideals clearly. The mass of us can be stimulated to feel these ideals to be worthy and pleasant, but Professor Murray does not explain why these ideals should be latent in the mass of humanity and be capable of being awakened. He supposes, for instance, that the normal language of Greek poetry is in itself in some sense sublime. He asks what gives words their character and makes a style high or low. His answer is "the company they keep in the minds of those that use them." An answer which will scarcely satisfy a race that has preferred the speech of the Saxon churl to that of the Norman aristocrat and kept alive the English tongue.

Dean Inge writes frankly of the influence of Greek thought on Christian faith and dogma. Historically and philosophically his chapter is of absorbing interest, but he does not make us feel that modern religion would have been the poorer without the influence of Greece. Greek philosophy, as Professor Burnet shows in another essay, was at its best when undivorced from science. His explanation of the various Greek schools makes intelligible the evolution of modern philosophy, and traces the development of speculative thought from Greek origins. Sir T. L. Heath is lavish in admiration of Greek mathematics and astronomy, but somehow he fails to arouse in us a desire to study mathematics in the Greek originals or to persuade us that our debt to Greece can outweigh the simple gift of Arabic numerals or the "cipher" which the Arabians bequeathed to us for ready reckoning.

Dr. Charles Singer has an easy task. Biology and medicine had never a mind to be forgetful of all they owe to Greece. But we acknowledge the brilliant fashion in which he has represented our spacious heritage. The essay on literature is by the editor, Mr. R. W. Livingstone. We are reminded how the Romans confessed their debt to Greece. "In learning," says Cicero, "and in every branch of literature, the Greeks are our masters." The Renaissance bears testimony to the same enthusiasm, and it has lasted even into the twentieth century. The Greeks were the first people in the world to make language express the thoughts that are in the minds of men. They invented every literary genre which we know, they laid the lines which European literature has followed, they created a body of prose and poetry which has won the homage of the world. They discovered for literature the essential qualities of simplicity, perfection of form, truth and beauty. But in all the admiration he outpours there is a strange omission. He has contrived to write of Greek literature without reference to Aesop and his fables, even though he may deem spurious those that have come down to us.

History at the hands of Professor Toynbee receives less than due justice. He uses certain phases of Greek history to illustrate some not very inspiring views of his own on contemporary events. Herodotus, for him, is mainly interesting as a fatalist, not as a chronicler, and not at all as the first of all geographers. Xenophon escapes his notice. Professor Zimmern depicts in faint outline the political life of the Greeks, and overshadows his sketch with partisan reflections on affairs of to-day. The Greeks, he says, have a message for us not only as regards the material of our politics but as regards ourselves. The message in fact reads more like Professor Zimmern's own.

In the Lamps of Greek Art a difficult task has fallen to Professor Gardner. The appreciation of the plastic arts and the pleasure given by the contemplation of painting or sculpture is so elusive and so personal as to defy exact analysis. On the whole the task is well performed, but in order to be receptive of the Greek ideals it is not necessary to cultivate a distaste for the work of Rodin. An art critic who is driven to express appreciation of one school of art in terms of his dislike of another soon becomes tiresome. Sir Reginald Blomfield dwells on the splendour of Greek architecture and gives a careful summary of its various forms.

One essay remains. When we have read all the rest we are inclined to say their arguments will revive the ardour of men who once studied Greek and increase the enthusiasm of those who already confess their obligations to ancient Greece, but they may fail to convert anyone who has never before heard the fame of Hellas. A modern barbarian might feel that the other essayists smacked too much of the schoolmaster lecturing on the advantages of Greek study and regretting that it had ceased to be compulsory. It has been left to Professor D'Arcy Thompson to entice where others would drive. His essay on "Natural Science" is in the first place an almost perfect example of the English essay. In the mere choice of words, in the balance and rhythm of his sentences, and in the treatment of his subject he displays a masterly skill. He makes us feel in very truth that "draw her close as we may to our hearts, Greece brings along with her a breath of the East, and a whisper of remote antiquity." He writes of more than the natural history of the ancients. We want to follow him, a-wandering into the by-ways of this literature that offers us the Indian tales of Ctesias and Megasthenes to add to the familiar stories of Herodotus, where we can sit with Athenaeus and his friends at the supper table listening to the merry troup of convivial gentlemen capping verses and spinning yarns. We ask to be taken to the greater world of letters wherein poet and scholar share in the love of nature and enliven the delicate background of their story with allusions to beast and bird. Aristotle becomes our familiar gossip as modern as Gilbert White of Selborne. We wonder what Fabre can tell us that Aristotle had not seen. Professor Thompson makes us sensible that in Greek wisdom and sweet Hellenic speech we have a priceless possession no longer confined to the school desk or lecture room but for our everyday life in a workaday world.

So we leave the book very well content, in spite, or perhaps because, of the fact that some of the essayists have not responded identically to the message of ancient Greece. At least we feel we can be co-heirs to the legacy without quarrelling because we enjoy our portions differently. The pleasure of reading these stimulating essays is enhanced by the "get-up" of the book. The size of the volume is convenient, whilst the type and proportion of letterpress to margin are excellent.

[1] *The Legacy of Greece.* Essays by various authors. Edited by R. W. Livingstone. Oxford: Clarendon Press. 1921. (Cr. 8vo, pp. xii + 424; illustrated. 7s. 6d. net.)

CATARACT.

COLONEL KIRKPATRICK, in his *Cataract and its Treatment*,[2] has produced a book which will be found most useful, not only by the civil surgeon in India, for whose benefit we judge that it has been written, but also by all ophthalmic surgeons. It contains chapters dealing with the development, anatomy, and nutrition of the lens; with the histological, physical, and chemical changes in the opaque lens; with the etiology and the varieties of cataract; with symptoms, signs, and diagnosis; with treatment, non-operative and operative; and with after cataract, and so on.

Where all is good it is, perhaps, a little invidious to single out any particular chapter for commendation, but we do not hesitate to say that the chapters on operative treatment are most excellent; the pros and cons of the various types of operation are placed before the reader in a lucid way, and it is refreshing to find that the author does not mind admitting that his right hand is his master hand, for we are convinced that the number of men who are absolutely ambidexterous is limited; we agree with Kirkpatrick that in a left-sided cataract the patient should be given the benefit of the master hand.

The author has had a larger experience of operative ophthalmology than that which falls to the lot of any surgeon who has practised solely in this country, and his pages abound in useful hints and sound practical advice. The book is well written, the illustrations are excellent and to the point, typographical errors are very few in number.

Our only criticism is directed to an unfortunate footnote on page 110, where "*the late Sir Anderson Critchett*" is stated to have practised a certain type of capsulotomy between the years 1876 and 1881. We suppose that Colonel Kirkpatrick is referring to the late Mr. George Critchett, for his son, Sir Anderson, happily is still with us.

PHYSICAL DIAGNOSIS.

IT is no easy task to write a book on a subject such as *Physical Diagnosis*,[3] which can only be fully taught in the living subject. More especially is this the case when the author writes, as does Dr. ROSE, who is lecturer on diagnosis in the University of Arkansas, both for students and practitioners. The former look for elementary facts, the latter for details of some particular matter presenting difficulties. Dr. Rose has set himself a task which he has hardly achieved, for the wealth of detail in some sections is in contradiction to the sketchy treatment in others. Ten pages, for instance, are devoted to a discussion of blood pressure, and the information contained therein could be compressed with advantage. It is doubtful whether practitioner or student would be much helped by the description of the various instruments or methods of estimating pressure, unless he had seen a sphygmomanometer in use, and if he had, the description is unnecessarily long. A similar criticism may be levelled at the very brief section on the nervous system, occupying less than fifty pages. Of these, ten are devoted to a discussion on equilibrium, the Bárány tests being described in great detail. As a turning chair is found in the equipment of only the very few, and those specializing in diseases of the ear, it seems unwise to burden the text with detail more appropriate to a monograph, to the exclusion of such simple matters as looking for cerumen in a case of vertigo.

Of the four parts into which the book is divided, those dealing with the thorax and the abdomen will be found of most value. The author rightly emphasizes the importance of inspection in diagnosis. How often is valuable information missed because auscultation or percussion is at once proceeded with, when a deliberate survey of the stripped patient will reveal some abnormality of contour, colour, or habit which reveals a diagnosis forthwith. The physical signs associated with intrathoracic disease are very fully described and illustrated by semi-diagrammatic drawings, which indicate the physical reasons for the production of alterations in the percussion note and auscultatory signs. This section will be of undoubted value to the student.

In dealing with radiographic diagnosis the author traverses the whole body, illustrating his remarks by a series of plates which show the value of this diagnostic method, though we doubt whether the untrained observer will learn much from them. *X*-ray diagnosis cannot be learned from plates in a book, but only by constant study directed by an experienced observer; in a textbook for students a definite statement of the type of case in which radiography will be of assistance is of far greater value than a number of plates, many of them illustrating rarities in medicine.

The cardiac section contains a good deal of valuable information, but here again there are strange omissions; no mention is made of the polygraph, which has surely established itself as part of the equipment of the expert diagnostician.

The book is furnished with a wealth of illustrations which are well produced. The text is, however, overburdened by the reproduction of many drawings apparently taken from an instrument catalogue. We are disposed to think that the author has attempted too much, and that the main lesson to be derived from his book is that diagnosis can only satisfactorily be learned at the bedside.

BENIGN STUPORS.

THE contributions of Dr. AUGUST HOCH to psychiatry are perhaps not so well known in this country as they deserve to be. Those who valued his work, however, will be glad that his last study, *Benign Stupors*,[4] was sufficiently completed before his death to be published in a book form. It is edited by Dr. John T. MacCurdy, who found it possible to discover from copious notes the intentions of the author as to the details of the uncompleted chapters. It has often been urged that Kraepelin's "dementia praecox" includes more than it should with its inevitably bad prognosis. The inclusion of Kahlbaum's "catatonia" in this group was especially open to question, as it implied that stupor could not be an acute, recoverable condition. Such a view is too rigid, and Hoch, recognizing this, set himself to discover if there were any observable clinical differences between cases of stupor which recovered and those which progressively deteriorated. The investigation met with success, and Hoch was enabled to offer a number of suggestions which merit further consideration. There appears to be a relatively pure form of benign stupor reaction in which the symptoms appear with tolerable consistency. The clinical picture is made up of the following symptoms: Poverty of affect or intense apathy; inactivity, often profound; diminished mentation during the illness with a subsequent memory blank for experiences during its course; an ideational content associated with thoughts of death; and certain marked physical disturbances. Cases belonging to this group can be differentiated from the deteriorating stupors of dementia praecox and the episodic retarded stupors of manic-depressive insanity. Thus in separating out this benign stupor reaction Hoch would seem to have indicated valuable prognostic criteria for a symptom-complex the clinical significance of which it is often difficult to estimate.

Hoch aimed to describe the stupor reaction not only in its psychiatric bearing but also as a life reaction. All his cases occurred in individuals who had some reason for unhappiness, and a survey of the precipitating circumstances and the delusional content led him to consider the reaction as a profound psychological regression often accompanied by the delusion of death. Such observations would seem to suggest that the benign stupors are closely allied to a severe form of the "psychogenetic" or "situation" psychoses.

This excellent clinical study may be thoroughly recommended; it will be particularly valuable to those who are commencing the study of insanity. It serves to emphasize the necessity for accurate observation of cases and to indicate the directions in which further clinical study is desirable in the present state of our knowledge.

A SYNOPSIS OF MIDWIFERY.

A Synopsis of Midwifery,[5] by Dr. ALECK W. BOURNE, of which a second edition has recently been published, will prove useful to students preparing for qualifying examinations. As the author states in his preface, the book is not intended to be a substitute for, nor indeed does it fill the part of, the ordinary textbooks on the subject, but should be used merely

[2] *Cataract and its Treatment.* By H. Kirkpatrick, Lieutenant-Colonel I.M.S. (retired). Oxford Medical Publications. London: Henry Frowde, and Hodder and Stoughton. 1921. (Demy 8vo, pp. xiii + 201; 69 figures. 12s. 6d. net.)

[3] *Physical Diagnosis.* By W. D. Rose, M.D. Second edition. London: Henry Kimpton. 1921. (Med. 8vo, pp. 735; 309 figures. 45s. net.)

[4] *Benign Stupors: A Study of a new Manic-Depressive Reaction Type.* By August Hoch, M.D., late Professor of Psychiatry, Cornell University. Cambridge: University Press, 1921. (Cr. 8vo., pp. x + 284. 14s. net.)

[5] *Synopsis of Midwifery.* By Aleck W. Bourne, B.A., M.B., B.Ch.Camb., F.R.C.S.Eng. Second edition. Bristol: John Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd. 1921. (Cr. 8vo, pp. 211. 15s. net.)

to supplement the latter. There are many students who, having thoroughly learnt the groundwork of the subject and, let us say, having passed the examination of the Conjoint Board, may perhaps one or two years later come up for a university degree at Oxford, Cambridge, or London. To such men this synopsis should be convenient as a means of refreshing their knowledge. As Dr. Bourne admits, and as is perhaps excusable in a synopsis, literary style has been sacrificed to brevity of expression, but none the less the reader will not fail to appreciate the clear, concise, and complete manner in which the subjects are dealt with. On the last count especially the synopsis reminds us of notes which a lecturer might make if he were anxious to omit nothing from his lectures.

In this second edition the book has been revised and brought up to date. It has moreover been enlarged by the addition of new matter, dealing in particular with the treatment of the toxaemias of pregnancy and of *ante-partum* haemorrhage. The book is divided into six sections following the general plan of Dr. Eden's classical work. The first two deal with normal and abnormal pregnancy, the third and fourth with normal and abnormal labour, the fifth with the puerperium and the newly-born child, and the sixth with obstetric operations. It is almost impossible to criticize in any one particular where the general standard of excellence is high. In points of controversy extreme views have been avoided, and the intermediate path taken—which usually means the generally accepted opinion. The book is to be recommended both to the senior student and to the general practitioner.

THE HOT SPRINGS OF NEW ZEALAND.

IN England the hot springs of New Zealand[6] are little known, and the facilities offered for treatment there are still less known. Dr. A. S. HERBERT has now supplied the information in a book entitled *The Hot Springs of New Zealand*. He is admirably fitted for his task, being consulting balneologist to the Dominion of New Zealand, after having been for many years the Government balneologist resident at Rotorua (the chief balneological station of New Zealand). The chapter on the climate of New Zealand has been contributed by the Rev. D. C. Bates, Director of the Dominion Meteorological Office.

The book is divided into three parts, of which the first contains a general description of the country and its hot springs, geysers, and boiling mud springs, illustrated by numerous photographs. The second part deals with the springs and various balneotherapeutic facilities and spas of New Zealand; whilst the third part is devoted to an account of general balneological principles and spa treatment, together with accessory physical treatment from the author's point of view. In this connexion we may note that he has made a special study of rheumatoid and arthritic affections, whether connected with traumatism or not. A picture is given of tophaceous masses in the hands of a Maori, but the author remarks that the "old-fashioned" kind of gout, of which he saw much in England twenty or thirty years ago, and of which so little is seen in New Zealand—gout, that is, with great tophaceous masses and fulminating attacks in the joints—requires wholly different handling from the kind more often seen now. A patient of this old-fashioned sthenic and plethoric type, "put without precautions straight on to full balneological treatment, is pretty sure to get an acute attack within the first week. He requires dieting and purgative waters, and, unfortunately, it is in good purgative waters that New Zealand is most deficient."

In his chapter on the classification of the "rheumatic" diseases Dr. Herbert suggests (as he has suggested to the Royal Society of Medicine) a classification into three groups: Group A, containing cases in which what he calls the "jaw-neck syndrome" is absent, includes gout (acute and chronic) and rheumatism (acute and chronic). Group B is a toxic and infective group, in which the "jaw-neck syndrome" is present; it includes gonorrhoeal arthritis or rheumatism, dysenteric arthritis or rheumatism, toxic arthritis or rheumatism, rheumatoid arthritis, arthritis following acute specific fevers (for instance, measles, scarlet fever, typhoid fever, mumps, influenza), and "thyroid (?) arthritis." Group C, which is not rheumatic, includes cases of traumatic arthritis.

A good many pages are properly devoted to a description of Rotorua, the chief place in the thermal district of New Zealand, and likewise the principal spa and the principal tourist centre. The native settlement was originally determined by the presence of the boiling springs—

> "For as in Europe wherever there is a hot spring there may be found a trace of Roman occupation, so in New Zealand wherever there is a hot spring there will be found a Maori whare (hut). The boiling springs and fumaroles serve to cook all the food, to wash all the clothes, and to supply primitive but luxurious open-air hot baths. . . . It is no wonder that the Maori built alongside the hot springs."

For a description of all the varieties of hot springs, geysers and boiling mud springs we must refer those interested to the author's own account. He thinks that change of environment is very important in the thermal and spa treatment of chronic diseases, and that "the picturesque Maori inhabitants and the weird thermal phenomena of the Rotorua district are assets of no mean value to a health resort." We can recommend the book to all medical men interested in balneotherapeutic methods, and likewise to all persons who intend to make a tour in New Zealand.

THE WAR AT SEA: WINTER, 1914–15.

THE second volume of *Naval Operations*,[7] the official history of the war at sea, contains less matter directly concerning the medical service than the first, but an acquaintance with the great multitude of facts Sir JULIAN CORBETT has marshalled in it will be indispensable to the historian of the Medical Service of the Royal Navy. The volume covers the period from November 20th, 1914, to May 8th, 1915. The earlier chapters describe the redistribution of the Home Fleets at the end of 1914, the raid on the Yorkshire coast on December 16th, 1914; the Dogger Bank action on January 24th, 1915; and the early operations on the Belgian coast and their abandonment. Incidentally opportunity is here found to give some account of the work of the mine-sweepers. Sweeping began on a large scale immediately after the raid when the Germans laid a large field; the work increased rapidly, and was maintained at a high level to the end. It was perilous, arduous, and nerve-racking. "It is difficult," Sir Julian Corbett writes, "to gain a full impression of all the toil and danger, the skill and devotion which went to make up what mine sweeping flotillas were giving to the common cause. Their part was but the sober background against which the more conspicuous exploits of the navy are thrown into relief . . . all this grim fishing was over and above the hunt for submarines. . . . We have been taught to be proud of how in days gone by the sea spirit of the nation answered the call at the hour of danger, but never in all our long story had there been such an answer as this."

The British casualties in the Dogger Bank action (January 24th, 1915) were astonishingly small. The *Lion*, Admiral Beatty's flagship, which suffered more damage than any other British ship, began firing at very long range at 8.52 a.m.; she was first hit at 9.28; within the next fifty minutes she was hit four times, and between 10.35 and 10.50 shell after shell hit her; at 11 she "was shaken from stem to stern by a hit that drove in the armour on the water-line abreast of one of the boiler-rooms, and did so much damage to the feed-tank and in the engine-room that the port engine had to be stopped . . . and the list to port increased to ten degrees." She was out of action, had afterwards to be towed, and was only brought into the Forth "by a fine display of seamanship." Yet her total casualties numbered only eleven men wounded. The destroyer *Meteor* "was hit forward by a heavy shell, which burst in the foremost boiler-room and put her out of action"; her casualties were four killed and two wounded. In the *Tiger* the senior engineer officer and nine men were killed, and three officers and five men wounded. The loss in the German fleet was heavier, for one battle cruiser, *Blücher*, sank, and credible reports from Denmark told of 1,150 wounded brought into St. Paul's Hospital at Hamburg, and of 260 landed at Wilhelmshaven from another battle cruiser, the *Derfflinger*, which does not seem to have been heavily engaged.

The volume is, however, mainly concerned with the Dardanelles operations from their inception as a naval diversion to their development into a combined eccentric offensive, and their failure as a *coup de main*. The military

[6] *The Hot Springs of New Zealand.* By Arthur Stanley Herbert, O.B.E., M.D., B.S.Lond. London: H. K. Lewis and Co., Ltd. 1921. (Demy 8vo, pp. xiv + 284; 3 maps, 87 figures. Cloth, 15s. net; paper covers, 14s.)

[7] *Naval Operations.* Vol. ii. By Sir Julian S. Corbett. London: Longmans, Green, and Co. 1921. (Cr. 8vo, pp. xi + 448, with 5 large and 12 smaller plans. 21s. net.)

movements are dealt with only so far as some account of them was essential in order to elucidate what the navy did. The full story will be told in a separate section of the official history. The last chapter in this volume relates the loss of the *Lusitania*, the negotiations which preceded the Italian convention, and the movement of opinion in Great Britain which led to the formation of the Coalition Government. The publishers have again been very generous in the provision of maps and charts, and there is a copious index.

TYPHUS IN THE BALKANS.

MR. J. JOHNSTON ABRAHAM'S *My Balkan Log*[8] deals with his adventures and experiences in a surgical unit which went to Serbia in October, 1914, and was demobilized in March, 1915, after a crowded time of most strenuous work under very difficult conditions.

The account of the overwhelming outbreak of typhus in which doctor after doctor and friend after friend sickened and died reads like a terrible dream. At that time, although 123 medical men in North Serbia had been attacked, and 97 had died, the censorship was concealing the ravages of typhus in the Serbian army, and the members of Mr. James Berry's Royal Free Unit arrived in ignorance of what lay before them. At an earlier date Mr. Johnston Abraham's unit had plenty of surgery among the Austrian prisoners and the Serbian soldiers, though the wild free Serbs had a primitive man's horror of any maiming operation, and so hated the surgeon and all his works that they often obstinately refused operation until it was too late to save life.

In spite of the horrors of these struggles the story is so fascinatingly told that it is difficult to put the book down. Mr. Johnston Abraham is a most accomplished writer, with a style light and always attractive. It is, therefore, not surprising that his two earlier books, *The Surgeon's Log* and *The Night Nurse*, are in their twelfth and ninth editions respectively, and it will be curious if the present volume is less successful.

NOTES ON BOOKS.

THE September number of the *Annals of Medical History*[9] appropriately bears on its cover the portrait of Hermann Ludwig von Helmholtz, who was born on August 31st, 1821, and in 1851 elaborated the ophthalmoscope, about which he modestly remarked, "Good fortune, rather than any personal merit, favoured me in its invention." Americans have a special interest in this great physiologist, as his mother was a direct descendant of William Penn. In the course of an account of John Shaw (1778–1809), a now forgotten medical poet of Maryland, Dr. John Ruhrah makes some interesting references to other medical poets, such as William Harvey, Haller, and von Volkmann, the last of whom, although a hard-headed surgeon, wandered into the fields of fantasy under the pseudonym of "Richard Leander." The attractively written article by Dr. H. A. Colwell on Gideon Harvey and sidelights on medical life from the Restoration to the end of the seventeenth century, is noticed on p. 202. The second of Dr. J. S. Taylor's three instalments of "Montaigne and Medicine" deals with the preservation of health, his attitude to medicine, his ailments and his travels, and contains a number of illustrations. The last illness and necropsy of Marcellus Malpighi is the subject of a note by Dr. John Donley, who also gives an account of George Baglivi, "the Italian Sydenham," author of *Praxis Medica*, one of the most interesting books of the seventeenth century. The translation of Baglivi's record shows that Malpighi suffered from gout and urinary calculi, and died in his 64th year from cerebral haemorrhage. Dr. M. Charlton, in his short account of W. R. Beaumont (1803–1875), who was born in Beaumont Street, Marylebone, and was a favourite pupil of Abernethy at St. Bartholomew's Hospital, and in Paris of Amussat, does not say anything about the better-known William Beaumont (1765–1853), whose physiological observations on the gastric fistula of Alexis St. Martin are so familiar. "A Christian Science cure in the sixteenth century, introducing the reader into very high society," is a translation by Dr. Horace Manchester Brown of Milwaukee from Hieronymus de Rubei of Ravenna. Dr. C. G. Cumston's historical summary of the treatment of trachoma, with special reference to the Arabian school and the writings of Ali-el-Aïssa (Jesu Hali), read before the Historical Section of the Royal Society of Medicine in May, is reproduced here. Among the editorial notes there is an interesting account of Dr. Crawford W. Long's removal of two cystic tumours from a patient's neck under ether in 1842, thus anticipating W. T. G. Morton by four years; but Long did not publish anything on the subject until after Morton. It is also pointed out that the words "anaesthesia" and "anaesthetist" were first employed by Oliver Wendell Holmes on November 21st, 1846, in a letter to Morton. The editor's reviews include an appreciative notice of *Studies in the History and Method of Science*, edited by Dr. Charles Singer.

Under the title *The Microscope, a Simple Handbook*,[10] Mr. CONRAD BECK has produced a useful book. It contains a description of the microscope, of different forms of illuminating apparatus, and of the manifold appliances used for measuring, enumerating and photographing. In discussing such problems as the numerical aperture of objectives, a subject which the student always finds it difficult to understand, the author succeeds in explaining his meaning without presupposing a knowledge of advanced mathematics. The chapter on object glasses and eye-pieces gives a great deal of information on the magnifying power of lenses, and contains a wealth of practical detail. The price in 1922 of instruments and apparatus described in the book is given in an appendix. Here the reader, whose interest has been awakened by the cunning devices described in the text, may check any hasty resolution by counting the cost. The book will be of particular value to those about to purchase a microscope, for by perusing its pages they will be able to consider the type of instrument which would best suit their requirements.

Perhaps the most interesting thing about the *Hazell Annual*[11] for 1922 is the fact that the price has been reduced very considerably since the last issue, and the volume is now published at 5s.; nor has any section been dropped that will be missed. Short articles are included on the Washington Conference and the League of Nations, and tables are given of the post-war strength of the navies of the United Kingdom, the United States, and Japan. Final statistics of the war casualties will also be found. The volume contains a great mass of condensed information on a large variety of subjects—such as occultation of stars by the moon, professional fees, London clubs, close time for game, the Royal family, knighthood and other orders, a commercial guide, a racing retrospect, embassies in London—in addition to the usual civil service, army and navy, and similar sections. On medical matters, so far as we have tested the *Annual*, the information is accurate, if not exhaustive. The volume forms a most useful work of reference.

Dr. BUCK'S *Dawn of Modern Medicine*[12] is a somewhat disjointed volume, divided into thirteen books and twenty-seven chapters; the author endeavours to trace the revival of the science and art of medicine which, he says, took place in Western Europe during the second half of the eighteenth century and the first half of the nineteenth. It consists for the most part of brief biographies of the eminent physiologists, physicians, surgeons, and men of science generally who flourished in Europe during the period in question, together with short extracts from their published works. The book is well illustrated, and its chapters will be read with interest by readers of all sorts who wish to know about the progress of science and scientific medicine at a period of rapid development.

The second part of the third volume of KREHL and MARCHAND'S well-known handbook of general pathology[13] deals with necrosis, calcification, uratic deposits, and pathological pigmentation, in articles written by Ernst, Schmidt, and Hueck. Each chapter of this exhaustive and up-to-date treatise ends with a list of references to the literature of the subject with which it deals. The volume may be recommended to pathologists as a book of reference.

In his book, *Prostitution und Tuberkulose*,[14] Dr. SAMSON supports Spillmann's contention that tuberculosis in prostitutes is to be regarded as a venereal disease, like syphilis and gonorrhoea, with almost equal facilities for propagation. Discussing alcoholism in prostitutes, he concludes that it is not a factor of importance in their acquisition of tuberculosis; the use of tobacco, however, he thinks accelerates the

[8] *My Balkan Log*. By J. Johnston Abraham. London: Chapman and Hall, Limited. 1921. (Demy 8vo, pp. 311; 16 plates. 15s net.)

[9] *Annals of Medical History*. 1921, iii, No. 3. Edited by F. R. Packard, M.D. New York: Paul B. Hoeber. Yearly subscription, 6 dollars, single numbers, 2½ dollars.

[10] *The Microscope*. By Conrad Beck. London: R. and J. Beck. Ltd. 1921. (Demy 8vo, pp. 144; 131 figures. 2s. 6d. net.)

[11] *The New Hazell Annual and Almanack for the Year 1922*. Edited by T. A. Ingram, M.A., LL.D. Thirty-seventh year of issue. London: H. Frowde, and Hodder and Stoughton. (Cr. 8vo, pp. xlv + 559. 5s. net.)

[12] *The Dawn of Modern Medicine*. By A. H. Buck, B.A., M.D. New Haven: Yale University Press; London: H. Milford, Oxford University Press. (Med. 8vo, pp. xix + 287; illustrated. 25s.)

[13] *Handbuch der Allegemeinen Pathologie*. Herausgegeben von L. Krehl und F. Marchand. Vol. III, Part 2. Leipzig: S. Hirzel. 1921. (Roy. 8vo, pp. vii + 497; 10 figures. M. 66.)

[14] *Prostitution und Tuberkulose*. Von Dr. med. I. W. Samson. Leipzig: G. Thieme. 1921. (Roy. 8vo, pp. 118. M.54.)

progress of the disease once they become phthisical. Dr. Samson suggests that in the interests of public health special regulations should be made for the control of the tuberculous prostitute; on this account the book should be read by medical officers of health.

Dr. EWALD'S book on Abderhalden's reaction[15] is a laborious attempt to establish the value and validity of this reaction, now much called in question, as a means of diagnosis; or, should its failure here be admitted, to prove that Abderhalden's work has at any rate enriched our theories of cellular activity. The volume is well written and full of detail, particularly with regard to the employment of the reaction in psychiatric practice.

The *Union Médicale du Canada*, which is a monthly medical journal, published in French at Montreal, has just celebrated its jubilee, having been founded in 1872; Dr. A. Lesage is the present editor-in-chief.

Before giving an order for a German book the intending purchaser should ascertain the price at which it can actually be supplied by the agent in this country.

[15] *Die Abderhaldensche Reaktion, mit Besonderer Berücksichtigung ihrer Ergebnisse in der Psychiatrie.* Von Privatdozent Dr. G. Ewald. Berlin: S. Karger. 1920. (Sup. roy. 8vo, pp. 210. M. 24.)

THE RHODESIAN SKULL.

ADDRESS BY PROFESSOR G. ELLIOT SMITH, F.R.S.

THE ancient human skull recently discovered in northern Rhodesia,[1] and now lodged in the Natural History Museum at South Kensington, was the subject of a remarkably interesting address by Professor G. ELLIOT SMITH, F.R.S., at the Royal Society of Medicine on January 26th, on the occasion of the President's reception.

Professor Elliot Smith, whose discourse was illustrated by lantern views and Mr. Frank Barlow's wonderfully perfect endocranial cast of the Rhodesian skull, said that hitherto anthropologists had been familiar with only three species of the genus *Homo*. All living members of the human family which were known were regarded as belonging to the species *Homo sapiens*, and only two distinct species had been regarded apart from this—namely, *Homo neanderthalensis* and *Homo heidelbergensis*. There were, however, two other more primitive members of the human family, represented by the *Eoanthropus*, or the Piltdown skull, and the *Pithecanthropus*, or ape-man of Java, for the reception of which special genera had to be created. It was a very remarkable event to have one more of these species added to the genus *Homo*; moreover, this new discovery came from a continent—Africa—which hitherto had provided us with no species of man other than *Homo sapiens*.

The newly discovered skull from Rhodesia presented a number of new points for discussion. Although there was no doubt that the skull represented a distinct species, and that the face was more primitive than in any other known member of the human family, yet the remains presented every appearance of being recent. The teeth, for instance, were attacked by an extreme form of caries, hitherto regarded as a relatively recent ailment. It was true caries, not merely the opening of the pulp cavities, and in Egypt caries was practically unknown before the pyramid age. The third molar also presented a remarkable reduction in size compared with the other molars, and this had also been assumed by many people to be a relatively recent modification in man. Although the remains were commonly spoken of as fossil, the bones were not fossilized in the true sense of the term, but as their surface was coated with oxides of zinc and lead and other metals which had protected them from the influences of the soil, one could not draw any inference from the fact that they were not mineralized. The animal remains which were found in the same cave all represented modern species, which were still living in Africa. There was no geological evidence to give even the slightest clue to the period of this remarkable individual.

The skull was found in a kopje in Northern Rhodesia, more than 300 miles north of the Zambesi, and not very far from Lake Nyanza. The hillock was about 300 feet high, and was rich in ores of zinc, lead, and vanadium, and running through it from west almost due east was a long cave from the floor of which had been collected several thousands of tons of animal bones. It was obvious from an examination of these bones that many of them had been brought in by hyenas, but others must have been handled by human beings, because there was evidence of the cracking of the bones to obtain the marrow. This process of accumulation must have taken an enormous number of years. It was not until the cave had been cleared out of animal bones that, at its extreme end, there were found the remains of two human beings, including the skull of one and a portion of the jaw of another, as well as other bones belonging to either. One of the chemists who was present at the discovery told him that an almost complete skeleton were there encased in a metallic mould of the surface of the body, but, unfortunately, the negro miners smashed up the encasement and destroyed many of the bones before they could be prevented. About fifteen years ago, when this cave was first opened, several investigators found in its floor a number of rough stone implements, so crude that one could scarcely affirm them to be artificial, were it not for the fact that the stone of which they were composed—quartzite—was not found within many miles of this spot.

The skull arrived in England in November last, the directors of the mine having presented it to the British Museum. The incrustations of zinc and lead were carefully removed by the museum authorities, and a remarkable face was revealed. The cranium was extremely low, the ridges of the brows were massive and about double the size of those of Neanderthal man, the orbits had a peculiar form, less rounded than in the ordinary skull, and a remarkable feature was the great distance which separated the nose from the alveolar process. The face altogether was extremely primitive. It bore a certain superficial resemblance to the famous Gibraltar skull in the museum of the Royal College of Surgeons of England, and further investigation had shown it to be more like this Gibraltar specimen than any other type which had been unearthed. As Gibraltar was on the threshold of Europe one would not be surprised to find a kinsman of this Neanderthal man in Africa, but the Rhodesian skull rather suggested a more ancestral type. It might be that the Rhodesian man was simply a survival of a primitive pre-Neanderthaloid race. Neanderthal man in Europe was associated with the mastodon, the woolly rhinoceros, and a whole series of animals now extinct in Europe, but some of these animals or near allies of them were still living in Africa, in the neighbourhood of Rhodesia, and it was just possible that a primitive type of man might have survived there also.

Professor Elliot Smith went on to draw attention to the enormous mass of bone in the Rhodesian specimen for providing attachment for the neck muscles. The head was not carried exactly vertically upon the vertebral column in spite of statements recently made to the contrary. In the outline of the forehead it resembled the Java skull. The teeth were very big, yet the canines did not project in the ape-like way found in the Piltdown jaw. The palate was enormous. The fossil lower jaw from the Mauer sands near Heidelberg had hitherto been regarded as an exceptionally massive example of a human jaw, yet it was too short by 3 mm., and too narrow in about the same proportion to fit the Rhodesian skull. The nasal configuration was important. In the ape, and indeed in all mammals other than man, there was no clear line of division between the nose and the face. The nose simply was merged in the face to form a snout. In this skull there was also a gradual slope from the nose to the face, very much as in the gorilla; but, at the same time, there was an attempt to form a nasal spine, which one never found in the gorilla. It was probable that the Rhodesian man had a similar outsplaying of the margins of the nose to that seen in the anthropoid ape, but there was also a nasal spine associated with a horizontal position of the septum, so that a definite tip to the nose was very likely formed. A face of this type might represent an intermediate condition between the apes and such broad-nosed types as the negro, the aboriginal Australian, and the Tasmanian.

Among the other remains of bones found in the Rhodesian cave was a tibia and a femur, as well as a sacrum. The tibia was perfectly straight and not curved, thus suggesting a more erect attitude than that of Neanderthal man. This had been taken as evidence that the Rhodesian man was a later type than the Neanderthal man of Europe. But if one based any argument on the tibia or femur one was met with the difficulty that the femur of the most primitive member of the human family, *Pithecanthropus*, was straighter than the Neanderthal femur. Moreover, the face of the Rhodesian was much more primitive than the face of the other. In any case the crucial evidence in determining the position of a member of the human family was the features of the brain.

[1] BRITISH MEDICAL JOURNAL, November 19th, 1921, p. 856.

Here the lecturer exhibited an endocranial cast of the Rhodesian skull, which Dr. Smith Woodward had kindly given him, and he referred to Mr. Barlow's technical achievement in making so excellent a mould under circumstances of exceptional difficulty. The endocranial capacity was 1,280 c.cm., slightly greater than that of the Piltdown skull, and much less than the Neanderthal. When controversy arose over the status of *Pithecanthropus* the Germans regarded the bones as those of a gigantic ape, English anatomists as a primitive type of the human family, and Dutch observers, as befitted their intermediate geographical position, as a kind of missing link, neither human nor simian. But the endocranial cast of *Pithecanthropus* was obviously human in type and left no possibility of doubt that the Javan fossil represented a member of the human family. The outstanding acquirement which differentiated the ape from the human being was that of speech, or the power of transmitting from one individual to another something more than the mere expression of emotion—of enabling one individual to acquire information and knowledge from another and so enhance his chances of survival. Thus the earliest types of human brain showed an expansion in the regions surrounding the auditory centre. In the Rhodesian brain, while one found the same imperfect condition of the frontal area as in the *Pithecanthropus* and *Eoanthropus*, there was also the same localized extension in the second temporal region, and the Rhodesian differed from the Piltdown in that this expansion spread to the inferior parietal region.

Generally speaking, the Rhodesian brain (when seen in profile) corresponded almost exactly with the Piltdown. The difference in size between the two casts was determined by the fact that the Rhodesian, having a very much broader base, was wider than the Piltdown, and therefore had a slightly larger capacity, but the evidence of the brain structure was quite conclusive that this individual of Rhodesia was very much more primitive than the Neanderthal race of Europe. This, of course, had no bearing on the relative ages, and it was possible that the primitive type of man survived in South Africa long after the Neanderthal type had perished from Europe. The fact that we had here a more primitive type of individual was borne out alike by the character of the face (which was much more ape-like than in the Neanderthal species) and the form of the brain. The particular regions of the brain which were obviously deficient were those areas which were the latest to attain their development in the human child—namely, the parietal area, the pre-frontal, and the inferior temporal, and of these the area most strikingly deficient was the inferior temporal. The first change which occurred in the transformation from the simian brain to the human was that which was associated with the power of articulate speech. The fundamental difference was in the territory concerned with auditory symbolism.

In conclusion, Professor Elliot Smith said that here we had to deal with a skeleton all the evidence of the finding of which suggested that it was comparatively modern in time, but extremely primitive in type—in fact, more primitive than any remains of extinct man, with the exception of the "ape-man" of Java and the Piltdown skull of Sussex. It was a type which presented extraordinary deficiencies in those parts of the brain which we associated with the higher powers of intelligence and the more subtle and delicate discriminations. A difficulty had arisen in interpreting certain features which seemed more like those of modern than of Neanderthal man, but those who argued from this that the Rhodesian was later in type failed to take into consideration that the Neanderthal had lost a great many primitive features by specialization, although these features were still found in modern man. The anatomical evidence was complete that here we were dealing with an extremely primitive type of the human family, even though it might be proved to represent a people who had inhabited South Africa until comparatively recent times. It belonged to a stage in the evolution of man before the superior parietal, the frontal, and the temporal regions expanded into the condition in which we now found them, raising up the vault of the cranium into the domed form of modern man; and the evidence supplied by the face that this was an extremely primitive type was completely borne out by the form and proportions of the brain. He added that he was shortly bringing before the Royal Anthropological Institute a more exhaustive study of this subject.

We are indebted to Dr. John Hunter for the tracings of the four endocranial casts by which this report is illustrated.

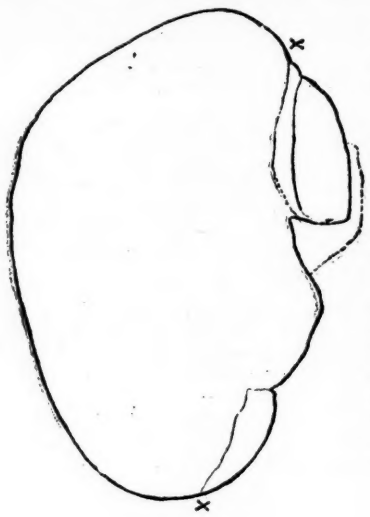

FIG. 4.—MODERN EUROPEAN. Tracing of profile view of endocranial cast of skull of modern European. One-third actual size. Cranial capacity, 1,570 c.cm. The crosses indicate the subcerebral plane.

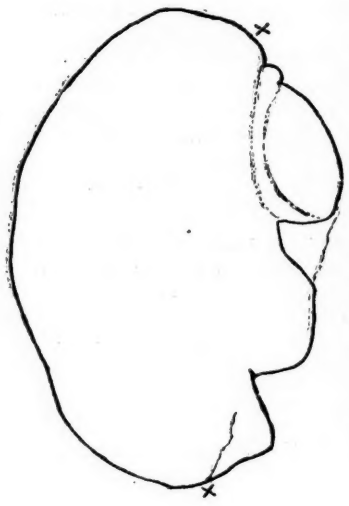

FIG. 3.—NEANDERTHAL. Tracing of profile view of endocranial cast of La Chapelle Neanderthal skull. One-third actual size. Cranial capacity, 1,625 c.cm. The crosses indicate the level of the subcerebral plane.

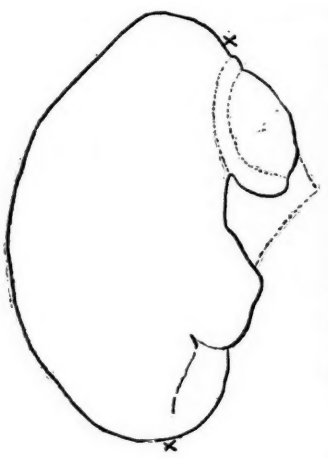

FIG. 2.—RHODESIAN MAN. Tracing of profile view of endocranial cast of skull of *Homo rhodesiensis*. One-third actual size. Cranial capacity, 1,280 c.cm. As before, the crosses indicate the subcerebral plane.

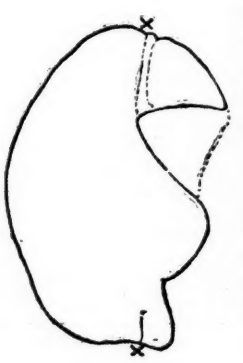

FIG. 1.—GORILLA. Tracing of profile view of endocranial cast of the largest gorilla skull in the Royal College of Surgeons of England. One-third actual size. Cranial capacity 500 c.cm. The crosses in this and succeeding diagrams indicate the subcerebral plane.

British Medical Journal.

SATURDAY, FEBRUARY 4TH, 1922.

THE TREATMENT OF MENTAL DISORDER.

IT is to be hoped that the Conference on lunacy administration, an account of which was published in our last issue, will give an impetus to proposals to provide those increased facilities for the treatment of mental disorder which are so eminently desirable. The whole subject is so complex that some divergence of opinion as to the methods of reconstruction is inevitable. The views expressed at the Conference, however, make it quite evident that those who are entrusted with the care of the insane are unanimously in favour of a broad and enlightened policy in regard to the problem of mental disorder as a whole. It is beginning to be realized that existing mechanisms are only designed to deal with what is included under the terms "lunacy" or "insanity," and that such terms entirely fail to cover what is meant by the term "mental disorder." Lunacy is a purely legal and not a medical term; it refers only to those subjects of mental disorder whom it is necessary for social reasons to deprive of their liberty by means of a legal process.

Outside the certifiable cases, however, there exists a large group of mental disorders which remain untreated and unrecognized as such, though they constitute a problem of the greatest social significance. In this category are included types such as high-grade defectives, juvenile and many adult delinquents, alcoholics and drug-takers, nervous and difficult children, inadequate personalities, the sensitives and the misunderstood, psychoneurotics, cranks, misfits, cyclo-thymics, incipient and mild psychotics, and so on. Quite apart, then, from questions relating to an improvement of the conditions under which the certified insane are treated, the problem created by the existence of this wider group of mental disorders has to be seriously considered. The problem has social and individual aspects. At the very least these psychopathic personalities must lead anxious and unhappy lives; they are haunted by a sense of inferiority and tend to lose their feelings of social esteem; they are out of contact with their surroundings, and are apt to drift into delinquency or sink into poverty; sometimes in despair they commit suicide or even destroy their families; and many of them eventually swell the numbers of the certified insane. From the social point of view such types tend to be unproductive; they constitute a source of anxiety to their *entourage*, upon whom they make considerable demands, and in a number of cases they are responsible for much domestic unhappiness; often they have, sooner or later, to be supported by the community. As Dr. T. Toulouse has said: "It is the psychism of individuals which constitutes the essential condition of all social activity. Though a serious lesion of one or more organs may be compatible with an almost normal professional life, a defective mental state, however slight, entails the diminution or the arrest of productive activity. In that which concerns the 'productivity' of an individual, as an element of the national prosperity, psychic integrity is thus of the first importance."

It is this uncertified and uncertifiable group of cases which constitutes the most pressing problem in relation to mental disorder. It must be recognized that the unhappy lives of the psychopaths, often culminating in delinquency, pauperism, or insanity, are to some extent to be attributed to the fact that they are unable to obtain adequate help and treatment. These cases need not necessarily pursue an unfavourable course. If they are treated in the early stages, when abnormal traits are first becoming apparent, much may be done to bring about a condition of readjustment or cure; and in those cases in which inherent instability exists, the patients may be directed to that kind of life which will do much to prevent the occurrence of severe psychotic episodes. There is an urgent necessity, therefore, for the creation of centres where these borderland cases and incipient psychoses can receive the treatment which they require, and it is certain that if this were done the number of certified cases would soon show a marked diminution. The establishment of psychiatric clinics is discussed with authority by Dr. E. Goodall in a letter published this week. There would appear to be nothing to prevent the creation of out-patient clinics for mental cases in the general hospitals, and it is to be hoped that hospitals for teaching and research will before long be opened along the lines indicated by various speakers at the Conference.

It has to be recognized that the problem of mental disorder is by no means exclusively medical. Abnormal behaviour is partially the outcome of a defective social organization, and all workers interested in sociology, housing, education, and industrial conditions are contributing indirectly to its prevention. In predisposed persons the seeds of mental disorder are often sown in childhood, and the teacher can probably do much to prevent the development of abnormal traits by an increased understanding of the nervous and peculiar child. The teaching profession is already taking a great interest in this question, and the activities of the British Psychological Society are productive of much valuable knowledge in respect to education, as also in respect to industrial and vocational problems.

It now remains to arouse the interest of the public, to whom the whole question of mental disorder is one of vital concern. It is not only a matter of financial assistance, but actual public co-operation is necessary if the campaign for the prevention and cure of mental disorder is to be effective. Experience has shown that propaganda is required in all movements of social reconstruction, and that voluntary organizations are almost essential in this direction, as also in filling up the gaps that are inevitably left in purely official mechanisms. This has been shown more particularly in the work of the Mental Deficiency Act of 1913, where the National Association for the Care of the Feeble-minded has done much useful pioneer work and proved of great assistance to the Statutory Committees. This association, however, is concerned only with one form of mental disorder, and we are of the opinion that a more comprehensive organization on the lines of the National Committee for Mental Hygiene in America, and *La Ligue d'Hygiène Mentale*, recently formed in France, would do much to further progress in the prophylaxis and treatment of mental affections.

THE PREVENTION OF DIPHTHERIA.

IN the decennium 1870–80 the death rate from scarlet fever per million living at ages under 15 was considerably greater than the death rate from diphtheria and croup; in the year of lowest mortality from scarlet fever (1877) the rate was more than twice that of diphtheria and croup—1,553 against 709. By 1884 the two rates had become almost equal (1,082 and 961). In every year since then the death rate from diphtheria and croup has exceeded that from scarlet fever, and in 1919 was four times as large (101 and 436). The death rate from diphtheria and croup did not, indeed, begin to decline

sharply until, some twenty years ago, the employment of antitoxin became widespread; it fell rapidly between 1901 and 1910; since then there has been very little change. Of the nine years 1911–19, two gave lower rates than 1910, seven higher rates. It is plain that we cannot rest satisfied with the advantages, great as these have been, which the discovery of antitoxin put into our hands.

We recently commented upon the report issued by the Ministry of Health on the subject of the Schick reaction, and print in this issue an account of a further co-operative study of the problems involved, communicated to the Epidemiological Section of the Royal Society of Medicine. This latter investigation is, we think, a very good example of the best kind of team work. The Ministry of Health was represented by Dr. S. Monckton Copeman, F.R.S., whose scientific and administrative qualifications will be universally recognized, while the high quality of the work carried out by Dr. O'Brien and his colleagues in the Wellcome Research Laboratories is familiar to all pathologists. We would add that the foresight of Sir George Buchanan in promoting such an inquiry is what all acquainted with the organization of the Ministry's scientific service had anticipated. It is fitting to mention these points, as, in some noisy but uninstructed circles, there seems to be a tendency to belittle the scientific work of the Ministry of Health. The precise results of the inquiry are set out with sufficient clearness in our abstract, and this is not the place to elaborate details contained in the full reports, but certain general conclusions should be specially noted.

In the first place, can it be said that the performance of the Schick test exposes the subject to an appreciable risk of injury? The answer is "No"; this experiment fully confirms the less exactly controlled but more numerous data of foreign observers testifying to the triviality of the constitutional reaction.

In the second place, can we say that a negative reaction proves that the subject is immune from risk of clinical diphtheria? This question cannot be answered so simply. What is proved is that the antitoxic content of the blood does not fall below a certain assignable limit defined by the toxin used in the test. The test is, in fact, a quantitative one. We may conceive the numbers of persons having different amounts of antitoxin in the blood to be represented by the ordinates of a frequency curve, the abscissae of which scale off a continuous range of antitoxic contents from zero up to some maximal quantity. What the test does is to separate the area of this curve into two portions, consisting of those with less and those with not less than a given antitoxic content. Now we may be certain that the liability to take diphtheria is negatively correlated with the amount of antitoxin in the blood, but we cannot suppose there is an absolute correspondence. No doubt dosage of infection is an important factor. The line must be drawn at some particular point, and the determination of the best point must rest upon experience. We have already enough experience to justify the statement that the risk the negative reactors run is immensely smaller than that of the positive reactors, and this is perhaps as far as we are likely to go. But—and this must never be forgotten—the test answers a definite quantitative question, from which epidemiological inferences may be drawn; it is not itself an epidemiological test.

In the third place, is the active immunization of a positive reactor free from danger and is it efficacious? As we have just seen, the answer to the second question turns upon the precise quantitative value of the toxin used. The answer to the present question is even more intimately bound up with that matter. The opinions expressed at the meeting reported this week, both by the investigators and by other experts, were unanimous that the safety and efficiency of active immunization depend upon the provision of a reliable toxin-antitoxin mixture, and that the process is one which must be controlled by experts. The time has not yet come when active immunization can be advised in the way that vaccination against small-pox can be recommended. The immediate practical conclusions we draw are those set out in Sir George Buchanan's preface to Dr. Copeman's official report—namely, that in the handling of institutional populations the method founded on the Schick test has an immediate sphere of value in this country. The investigation which has been carried out at the Mitcham schools has, so far as this country is concerned, put the subject upon a sound basis. To say this is not to cast any doubt upon the work done abroad—of course, upon a much larger scale than here. But it is obviously desirable to have under our eyes a small-scale carefully controlled investigation which has made plain to all both the advantages and the limitations of the procedure.

PRIZES FOR RESEARCH.

THE proverb tells us not to look a gift horse in the mouth, but when generosity seems to be taking a course that is not the best possible it is not improper to discuss the matter. We mentioned last week that Lord Atholstan has informed Sir Arthur Currie, Principal of McGill University, that in order to stimulate the work of cancer research he offers a prize of 100,000 dollars (£20,000) to the graduate or student of any recognized university who, within five years, is the first to discover a medicinal treatment for the effective cure of cancer. The offer, it is stated, may be renewed. We have only a Reuter's telegram to go upon, and are therefore unacquainted with the conditions Lord Atholstan may have been advised to impose, beyond the fact that the decision is to be left to the Royal Colleges of Physicians and Surgeons in London. We are not aware whether these bodies have accepted the obligation imposed upon them. Whatever else it does, the offer, even though guarded by the condition that the winner of the prize must be a graduate or student of a recognized university, is pretty certain to lead to a great number of claims by persons who believe, or affect to believe, that in some fortuitous manner they have discovered a cure for cancer. There are many such already. Moreover, the adjudicators will have to define what is meant by "cancer" and what is meant by "cure." As is universally recognized by surgeons and radiographers, the removal or apparent disappearance of a cancer may not really amount to a cure; it may come back within the three, or as it now seems to be five, years fixed by surgeons as the test of recovery. Incidentally, it may be observed that the adjudicators will have to decide whether radiotherapy is a medicinal treatment. Meanwhile Sir William Veno has made an offer of £10,000 for the same purpose, and is content that it should be subject to the conditions named by Lord Atholstan. As has been said, we are still in the dark as to these, but an interview in the press gives some insight into the considerations which have moved him to make his offer. He suggests that the progress in pathological, surgical, and medical science in this and other directions might be greatly stimulated by the creation of such direct incentives as that offered by Lord Atholstan in the case of cancer. He thinks it clear that, if for successful work done, say during the next decade, suitable and substantial awards were forthcoming, study and research would be greatly stimulated. This opinion is questionable, and experience does not lend much support to it. Both the chief French academies—that of the Sciences and that of Medicine—have many prizes, some few of them of considerable amount, designed to encourage search for cures of various diseases. So far as we recollect there is no instance in which it can be said that they have had this effect. The fact is that to the possessor of the temperament which makes a man devote himself to research, and of the high intellectual qualities necessary for its successful prosecution, the possibility of a pecuniary prize is

in itself no very great inducement. He knows very well that he is embarking on a piece of work which he cannot well hope to complete by his own unaided efforts, and he knows too that the end may not be attained in his generation. He knows also that the fame and honour which would belong to the man or men who attained the result would transcend any money reward. Even if we put aside such considerations and try to regard the offer of a prize as a matter of business, it becomes evident that a prize is not the best way to attain the desired results. A man who attacks the problem of the cause and cure of cancer—and almost certainly the cause must be ascertained before a cure is found—knows that he is not likely to make much progress in the five, or even in the ten years contemplated. He must maintain himself during the period, he must have assistants, laboratories, and a hospital; he is, in fact, asked to gamble his life with the odds heavily against him. The money the donors are willing to give would, in our judgement, be far better spent not on wild speculation such as this, but on the judicious assistance and encouragement of work already on foot. Even at this late moment we hope that these considerations will have weight with the donors.—Since this note was written we observe that Sir Wilmot Herringham and the authorities of the Middlesex Hospital have expressed opinions very much to the same effect.

THE MEDICAL RESEARCH COUNCIL.

MORE space has been given in the last three issues of the JOURNAL to the annual report of the Medical Research Council than it is usual to assign to a document of the kind. This has been done partly because much of the information it contains is of direct practical interest to medical men engaged in general practice, and partly in the hope that those who have been at the pains to read the report will be prepared to recommend members of Parliament with whom, as constituents, they have influence, to scrutinize very closely any proposal for a further reduction of the vote. In saying this we would desire to apply the same principle to the work of the scientific department of the Ministry of Health, of which the recent investigation of the Schick reaction in diphtheria is a good example. We have no special reason to suppose that the axe is intended to fall upon the Medical Research Council, but it is generally assumed that the Ministry of Health is among those departments in whose budgets cuts may be proposed. The Medical Research Council in its annual report states that its work is brought into close relation with that of the Ministry of Health in schemes of research work. The Council and the Ministry have co-operated in the investigation of tuberculosis, nutritional diseases, food poisoning, and dental decay, and in inquiries as to the treatment of venereal disease, of rheumatism and allied diseases, and of mental disorders; in these and other instances officers of the Ministry have taken an active part in the inquiries, giving great assistance, whether in organization or in scientific work as such. Similarly, the Council has had the advantage of direct co-operation with the Board of Health for Scotland and the Ministry of Health for Ireland. As has been shown in the first notice published of the report, the Medical Research Council—though tasks additional to its schemes of research were laid upon it during the financial year 1920–21—has had its total resources reduced. It has the good fortune to be dependent on the Privy Council, and therefore to have the Lord President, Mr. A. J. Balfour, to champion its cause in Parliament. In the introduction to the report signed by him it is said that the Privy Council is satisfied that, owing to the present financial position of the country, the Medical Research Council must omit the prosecution of researches which would have indubitable scientific value towards the advancement of preventive or curative medicine. On the other hand, the Privy Council recognizes that that very position calls for the very fullest possible development of the sciences by which the health and the productivity of the people may be protected and increased. Mr. Balfour concludes by drawing special attention to the provisions of the Royal Charter incorporating the Medical Research Council, by which that Council is empowered to hold land and money derived from private benefactions in addition to the resources that may be voted by Parliament. The Medical Research Council expends rather less than one-third of its total income on the maintenance of the National Institute for Medical Research; the greater part of the remainder is devoted to encouraging research in specific subjects at universities and other centres, to research in clinical medicine, and to the Industrial Fatigue Research Board. In a medical journal we need not spend space in defending this course, for medical practitioners are well aware that there are some subjects which are ripe for intensive investigation at a single centre where expert workers in all departments are assembled, and others which are best studied in detail at the periphery. Incidentally, the policy gives much-needed assistance and encouragement to the research departments of the universities. We trust that the Parliamentary vote to the Council will not be diminished, and also that the generous benefactor who is not bound by early recollections or local ties to any particular university may bear in mind that the Medical Research Council is in a position to apply to great advantage gifts or bequests it may receive for the advancement of the sciences of medicine and hygiene.

THE EXAMPLE OF THE ROCKEFELLER FOUNDATION.

THE extensive scope of the undertakings of the Rockefeller Foundation are clearly set forth in the annual report for 1920, which contains the reports of the president, the secretary, and the treasurer, and accounts of the work done by its departmental agencies—the International Board of Health, the China Medical Board, and the Division of Medical Education. In his review of the year the president, Mr. George E. Vincent, clearly recognizes the difference, from the preventive point of view, between the control of malaria, small-pox, enteric, and scarlet fever on the one hand, and on the other of influenza, pneumonia, tuberculosis, measles, diphtheria, and many other infections which are either less perfectly understood or do not respond so readily to measures undertaken against them. Valuable as is the work of public authorities, only about 20 per cent. of the menace to life can thus be dealt with, and until whole nations are so thoroughly educated in the necessary principles that prevention becomes a guiding factor in individual lives the ideal of prevention rather than cure is still to seek. Under this new dispensation the task of the medical profession would be to keep people free from disease. Medical education can no longer be maintained on a commercial basis, but its improvement is essential, and accordingly the Rockefeller Foundation has given financial aid to carefully selected medical schools in various parts of the world and has awarded fellowships to 120 persons drawn from thirteen nationalities anxious to prepare themselves for institutional or Government service as teachers, investigators or administrators. Last year rather more than seven million dollars were thus expended. It is a matter for regret that the Medical Research Council, which has done so much in so comparatively short a time in this country, should be handicapped by want of funds from an even wider activity; last year Parliament made a grant in aid of £130,000, and by the practice of rigid economy a great deal has been done, as we have shown in the account given during the last few weeks of its annual report. The Rockefeller Foundation is the outcome of private benevolence; in this country the times are hard and the axe hangs over the head of every Government department; but even so, it must arouse some heart-searchings when it is necessary for the generosity of the Rockefeller Foundation to come to the aid of a medical school in the capital of the British Empire. Although there is no verbal justification in the report for such a suspicion, it may well be that the policy of the Rockefeller Foundation has tactfully in view the hope that its benefactions may be a stimulus to self-help, and possibly the grant of some five million dollars to University College Hospital Medical School may exert such an influence in this

country in the not too distant future. The Foundation's Division of Medical Education was started in December, 1919, to study this subject, and to assist medical education, when important opportunities offer, in parts of the world other than the United States in which the promotion of medical education comes within the province of the General Education Board. In 1915 the Rockefeller Foundation organized the China Medical Board, and continues to maintain and expand a modern medical school and a pre-medical department in Peking—the new Peking Union Medical College—which was described in an illustrated article in our issue of November 5th, 1921, p. 764. Help is also given to unaffiliated institutions for medical and pre-medical education in China. The report of the International Health Board contains a great deal of interesting information on the measures taken to eradicate disease. In July, 1920, yellow fever was banished from Guayaquil, where it had existed since 1842, and it is hoped that the last endemic focus of the disease in Ecuador was then eliminated. But in the same year the disease broke out in Guatemala and Salvador, and a few sporadic cases were reported in Nicaragua. In these countries, as well as in Peru and Brazil, an attack has been made on the breeding places of the *stegomyia* mosquito. A yellow fever vaccine from killed cultures of Noguchi's *Leptospira icteroides* was given to 8,000 non-immune persons; a period of ten days is necessary to bring about immunity, and, except for cases arising within this period, no yellow fever occurred among these individuals; among the non-vaccinated, during the same period and in the same areas, there were about 700 cases. A therapeutic serum prepared by Noguchi for use in the early stage of the disease appeared to reduce the usual mortality of 50 to 60 per cent. to 9 per cent. In 1920 a commission was sent to West Africa to investigate yellow fever there, but it did not see any cases of that disease or of "shaura," which is said to exist among the natives, and in its acute stages to present symptoms suggesting yellow fever. Another commission will be sent to decide definitely whether or not this is yellow fever. There are two fine tributes from the President and Professor W. H. Welch to Surgeon-General Gorgas, who died in London on July 4th, 1920, on his way to West Africa as director of this commission. The war against mosquitos has been vigorously carried on, and it has been found that the use of fish which devour the mosquito eggs has important advantages over oil as regards cost, inasmuch as it is not affected by wind or rain, and is applicable to running water. Hookworm disease (ankylostomiasis) continues to receive extended attention, as is shown in a well-illustrated appendix of seventy-five pages, which really forms an absolutely up-to-date monograph on the prevention of this scourge.

GIDEON HARVEY, M.D.

TIMOTHY BRIGHT, physician to St. Bartholomew's Hospital in the sixteenth century, though memorable as the inventor of modern shorthand, and, before he left medicine for the Church, as the author of a *Treatise of Melancholy*, which is said to have suggested to Burton his famous *Anatomy of Melancholy*, is so forgotten that he is not likely to be confused with Richard Bright of Guy's Hospital and renal disease. Two other physicians with an identical surname otherwise form a remarkable contrast: of William Harvey it may be said that his writings are much less than the man and his works, whereas Gideon Harvey (1640–1700?) is interesting merely in so far as his published books cast sidelights on medical life from the time of the Restoration to the end of the seventeenth century. In an attractive account of Gideon Harvey's writings, Dr. H. A. Colwell[1] describes him as the greatest medical bounder of his time, a great advertiser with a secret cure for venereal diseases, as set forth in *Great Venus Unmasked*, and in its subsequent abstracted form *Little Venus Unmasked*, but as a man of reasonable capacities and considerable humour, who ruined himself in a professional sense by his unlimited conceit and arrogance. He freely caricatured the greater men of his day, designating the living by some nickname usually uncomplimentary, and the dead either by their full name or in some quite transparent manner. Thus, Sir Thomas Browne, of the *Religio Medici*, is referred to as that "famed Doctor of Norw.," and is accused of butterfly hunting on his way to a patient, and spending so much time in entomological demonstrations to his coachman that the unfortunate patient died before his arrival. Gideon Harvey at first addressed pages of fulsome adulation to the College of Physicians, apparently in the hope that he would be elected to the fellowship *honoris causa*, but, being disappointed, he took his revenge in a series of affronts to common decency and professional etiquette. His *Casus Medico-Chirurgicus*, purporting to describe the treatment of Lord Mohun who was wounded in a duel in 1576, is a vivid sketch of contemporary medicine and surgery, and contains virulent attacks on the eminent men called in, such as Lower, Charleton, Daniel Whistler, and Micklethwaite (President of the College of Physicians 1676–1681), called respectively Dr. Timon, the Ephesian doctor, Dr. Nemo, and Mr. Pres. His *Art of Curing Diseases by Expectation* takes as its main thesis that, although recoveries may occur even under the treatment of physicians (of the College) they are due not to their remedies but to the patient's faith in his doctor, aided by "abstinence from flesh and strong liquors." In this work he threw ridicule on the extraordinary concoctions of the mithridate and theriaca, fifty years before Heberden's protest; but perhaps, as Dr. Colwell suggests, his personality was a factor in the survival of these remedies for a hundred years more. The authorship of *A Treatise of the Small-pox and Measles*, published in 1696, is given as "By Gideon Harvey, M.D., His Majesties Physician of the Tower, and not of the College of Physicians," and the preface contains a hint that its printing had been delayed by the "Gang of Physicians." His *Conclave of Physicians, Detecting their Intrigues, Frauds, and Plots against their Patients*, though stated in the introduction to be a satire on the Paris Faculty, was obviously directed against the London College. Harvey attacked his namesake William Harvey and was especially violent against Sydenham; he poured scorn on anatomical investigation and on the use of cinchona and iron, those who prescribed the latter being referred to as "farrier physicians." The excessive bleedings in vogue, more in France than in England, were rightly condemned, and the uselessness of medicines in dissolving vesical calculi was strongly insisted on by him. *The Vanities of Philosophy and Physick*, published in 1699, was his last effort, and is a queer discursive kind of treatise in which some of his old ideas are revised and physicians, previously reviled, are spoken of in more kindly terms.

[1] *Ann. Med. History*, New York, 1921, iii, 205–237.

THE NEW PARLIAMENTARY SESSION.

OUR Parliamentary Correspondent writes: It is the prevalent view that the session which will be opened on Tuesday next, February 7th, will not run the normal length; but that a general election will be determined upon, to take place either immediately after the Irish legislation and a few financial votes have been passed, or after the Irish legislation and the Budget. In the progress of the Irish bill the very interesting and important question will arise as to the status of medical men with Irish Free State citizenship. The whole matter is very clearly and temperately discussed by Dr. Hennessy, the Irish Medical Secretary of the British Medical Association, in a letter quoted in the course of an article on the subject at page (206). Various reasons are assigned why the Government is unlikely to take up the reform of the House of Lords until after a general election. The most potent may be that controversy on the issues threatens to become acute, and that even within the Cabinet it may be more than difficult to reach conclusions in the time available for a bill to be put forward this session. At latest, however, the matter will be one of the first subjects to be dealt with by a new Parliament. Curiously enough the assumption is widely made in talk and in writing that no solution is possible which either does not restrict the

authority of a second Chamber much as at present, or else by giving it full liberty (on a popularly elected plan) enables it to thwart the decisions of the House of Commons. Holders of such views ignore the recommendation of the Bryce report, that differences between the two Houses should be settled by a joint committee of the two Chambers. Whether or not that proposal would be satisfactory, it deserves better treatment than has been given it in the press. A further idea put forward within the last fortnight is that differences on great questions might be settled by a referendum. The Cabinet has not disclosed its attitude towards the scheme of the Bryce Committee, but the compendious letter wherein Lord Bryce conveyed its findings to the Prime Minister in 1918 will stand out as an historic document, in which is clearly and felicitously expressed the opinion of a large and representative body of members of both Houses. There were only three dissentients. The Committee advised that the second Chamber should consist of two sections. One section should number 246 persons, chosen by panels of members of the House of Commons, distributed in geographical groups, and empowered to elect representatives in proportion to the population of the areas. The second section should consist of persons chosen by a joint standing committee of both Houses, the number so elected to be one-fourth of the whole Chamber, and to be exclusive of *ex officio* members. In regard to the members elected under the first section (by members of the House of Commons) it was proposed that the election proceedings should be private, that the voting should be by ballot and by proportional representation, using the method of the single transferable vote. In regard to the second section (that to be chosen by a standing joint committee) it was proposed that in the first instance the persons so chosen should be selected from the holders of hereditary peerages, and from bishops holding diocesan sees (with a minimum of five), and that at the second and third elections not less than half the vacancies should be filled by a similar selection, and that afterwards the selection should be free, except that the number of hereditary peers in the second Chamber should not fall below thirty. The term of office in the second Chamber was to be on a twelve years' basis, qualified in the first twelve years by the requirement of elections of one third every four years; it was recommended also that law lords should hold their peerages during the tenure of their judicial offices. It was laid down that a joint authority of the two Houses should be constituted to deal with financial questions. The most serious criticism the report has so far encountered is that it failed to justify the hope that care would be taken to secure in the second Chamber the presence of the heads of the learned professions other than bishops and lawyers. It was expected that some arrangement for limited nominations would be included, so that a reconstituted House might have the benefit of the presence of a few men with highest knowledge in their own spheres, but who, having no party political interest, would otherwise be unavailable. This applies to the profession of medicine as well as to other domains of scientific thought.

MEDICINE IN SOVIET RUSSIA.

THE Commission sent to Russia by the Health Committee of the League of Nations has issued a report on the situation in that country with reference to health, which will serve to remove some of the general ignorance of medical conditions in Russia. As regards the dangers of epidemics spreading from within the Russian borders, the Commission was able to gather from competent authorities information which may be looked upon as trustworthy. Professor Tarassevitch gave his assurance that to his knowledge there was not a single case of plague within the borders of European Russia, although there was a definite focus of bubonic plague in the Caucasus in 1920. The epidemic of cholera, which at first spread with alarming rapidity, came to an end very suddenly in the middle of what is usually the epidemic season, but satisfactory explanation of the phenomenon has been given. The typhus epidemic was more serious; seven and a half million cases of typhus were notified, in the years 1919–1920, in all the territories of the old Russian Empire, excluding Poland and the Baltic States; in order to approximate to the number of cases which actually occurred it was considered necessary at least to double the number of notified cases, which would bring the probable number to fifteen or twenty million in these years; according to the most recent information, typhus is again spreading all over Russia. Dysentery did not attain epidemic proportions in 1920, except in Petrograd, but malaria was present in certain districts in epidemic form and with a high mortality, particularly in Saratov and the Volga district; it was epidemic also in the Archangel region, a remarkable fact in view of its geographical situation. The Russian authorities appeared to be in no great fear of small-pox, and were confident of being able to check its progress; the maximum number of cases in 1920 was apparently below 100,000. The Commission had no doubt regarding the relation between famine and the spread of the epidemics, cholera being almost entirely limited to the famine districts and typhus mainly restricted to them. The disorganization of the railway traffic had been a blessing in disguise by preventing the spread of epidemics, but there is in Russia a constant and steady migration of refugees, both former war prisoners and civilians. The Soviet Government has created a special organization, the "Centrevac," to deal with the refugees and generally with all mass movements of the population. The Centrevac has established quarantine stations and barracks for refugees, and controls a total of 240 institutions all over Soviet Russia, including hospitals, laboratories, and institutions for the welfare of children. Children are apparently being taken care of in a very comprehensive way; 2,000 child welfare centres have been founded during the last two years. In view, however, of the extremely difficult conditions of life in Russia children are often voluntarily abandoned to the care of the State, being sent to institutions to pose as orphans. The Commission state that the misery of Russian life to day was evident in every hospital visited; yet a big municipal hospital in Moscow was maintained in exemplary cleanliness, all the plant was in perfect order and working at full pressure, and the purely professional side appeared to be at a very high level. The staff which kept this institution in such a high state of preservation were being paid salaries much below the famine level, and the nurses were given food only every second day. Notwithstanding the conditions of life, scientific activity in Russia has not ceased; in Moscow alone there are, it is said, twelve municipal bacteriological laboratories, and in the Moscow district as many as thirty, but, while the staff is very numerous, the output of the institutions as regards the production of vaccines and serums is meagre. Yet at the same time it is asserted that the scientific researches carried on throughout Russia would do justice to any country. There were practically no scientific periodicals and books published in either English or French to be found in any of the university or other libraries of Russia. The second Russian revolution threw open the doors of the universities to anyone who could read or write, with disastrous results in regard to medical education, particularly as no examinations were being held at the end of the appointed curriculum. The Russian Medical Scientific Council has, however, fought energetically during the past two years for the reform of the medical schools, and succeeded a few months ago in having the "doctors" of the last two years compulsorily re-examined and new regulations approved. The central health administration is apparently in the hands of fully competent medical officers recruited from the municipal and communal public health services of pre-war days, and while administrative posts of decisive importance are reserved for the adherents of the present Russian régime, all the technical appointments are being given to the best candidates who can be procured. The Commission has established direct relations between the health authorities of Russia and the League of Nations, the people's Commissary of Health

having expressed to the Health Committee of the League his readiness to send regularly all information with regard to epidemics. A sanitary convention is being negotiated between the Russian Government and contiguous countries.

THE PATHOLOGICAL MUSEUM AT THE ANNUAL MEETING.

THE committee appointed to organize the Pathological Museum in connexion with the Annual Meeting of the British Medical Association at Glasgow in July next proposes to arrange the material under the following heads: (1) Exhibits bearing on discussions and papers to the various sections; (2) specimens and illustrations relating to any recent research work; (3) instruments relating to clinical diagnosis and pathological investigation; *x*-ray and other photographs; (4) individual specimens of special interest, or a series illustrating some special subject. It is also proposed to make an effort to gather together a series of exhibits relating to diseases of animals and plants of economic importance. The Museum will occupy a convenient position in the same building as that in which the sectional work is carried on, and will be easy of access. The chairman of the Committee is Professor John H. Teacher, M.D., and the honorary secretary Dr. G. Haswell Wilson. Members who are willing to supply interesting specimens illustrating other subjects are invited to communicate with Dr. Haswell Wilson, the University, Glasgow. Every care will be taken of specimens, and the contents of the Museum will be insured. It is hoped that it will be possible for arrangements to be made whereby exhibitors may have an opportunity of demonstrating their specimens.

THE OCTOCENTENARY OF ST. BARTHOLOMEW'S HOSPITAL.

A MEETING was held at the Mansion House last week to make preliminary plans for the celebration of the 800th anniversary of the founding of St. Bartholomew's Hospital, with which the city of London has had direct connexion since the charter granted by Henry VIII. All that is to be known about the foundation of the hospital on its present site by Rahere in 1123, and the granting of its first charter by Henry I, has been told by Sir Norman Moore in his great *History*. The story of Rahere's vision and vow to St. Bartholomew was so well known, that in spite of the formal dedication to the Exaltation of the Holy Cross the hospital was always called St. Bartholomew's during the Middle Ages. At the meeting held on January 26th it was agreed, on the proposal of the treasurer, Lord Stanmore, that the celebration should take place in the spring of next year, and committees were appointed to make arrangements, with a number of subcommittees to consider questions of finance, religious services, receptions, entertainments, and scientific and historical exhibitions. The Minister of Health, who attended, gave the project his hearty approval, and promised the support of his department. The celebration of its eighth centenary will give an opportunity to bring the history and usefulness of this great institution before the public in a worthy manner. The Prince of Wales, president of the hospital, has given his cordial approval to the scheme. The universities will be invited to send representatives, and the Lord Mayor will be permanent chairman of the Grand Committee. The antiquity of Bart's as a centre of healing and instruction, first without and later within the City, is brought to mind by the fact that it is seventy years older than the office of Mayor of London. How the hospital came to be at Smithfield is told in the manuscript called *Liber fundacionis*, of which a very full account, with extracts, has been given by its historian. The ancient cartulary of the hospital, written in the reign of Henry VI by John Cok, contains a copy of every royal or private charter, and of every Papal Bull belonging to St. Bartholomew's Hospital at that period of the fifteenth century. For the first four hundred years of the institution its character as a religious house was preserved, and it was not until Tudor times that it came into prominence as a place for the treatment of sick people. But even in mediaeval times it had its influence on the course of medicine in this country. From the time of Henry VIII's charter its progress as a great force in the history of medicine was unmistakable. On the ruins of the old order was then raised the great hospital as we know it to-day.

CONGRESS OF THE OPHTHALMOLOGICAL SOCIETY.

THE annual congress of the Ophthalmological Society of the United Kingdom will be held in London next spring, beginning on Thursday, May 11th, when the Edward Nettleship Prize will be presented. On the afternoon of the same day a discussion on industrial diseases of the eye, excluding accidents, miners' nystagmus and glass-blowers' cataract, will be opened by Dr. T. M. Legge, C.B.E., H.M. Medical Inspector of Factories, and Mr. Bernard Cridland. Papers will be read on the mornings of the three days for which the congress lasts. On the afternoon of May 12th a clinical meeting will be held at St. Bartholomew's Hospital, and in the evening specimens and sections illustrating tuberculosis of the eye will be exhibited and discussed. The congress will terminate after the meeting on Saturday, May 13th. Further information can be obtained on application to the Hon. Secretary, 14, Portland Place, London, W.1.

SIR WILMOT HERRINGHAM, K.C.M.G., C.B., consulting physician to St. Bartholomew's Hospital, and formerly Vice-Chancellor of the University of London, has been appointed by the Minister of Health to be Chairman of the General Nursing Council of England and Wales, in succession to Mr. J. C. Priestley, K.C., who has resigned.

THE International Health Board of the Rockefeller Foundation has in preparation and nearing completion a bibliography on hookworm disease. It will be issued in a volume, but only a comparatively small edition will be printed. Copies will be sent gratis to those who are specially interested. Applications should be made to the Director of Information Service, Rockefeller Foundation, 61, Broadway, New York.

DR. MAJOR GREENWOOD, Milroy Lecturer before the Royal College of Physicians of London, has chosen for the subject of his lectures on March 9th, 14th, and 16th, the influence of industrial employment on general health. The Goulstonian lectures to be given by Dr. Anthony Feiling on March 21st, 23rd, and 28th, will deal with the interpretation of symptoms in disease of the central nervous system. Dr. Hector Mackenzie's Lumleian lectures on diseases of the thyroid gland will be delivered on March 30th and April 4th and 6th. All the lectures will be given at 5 p.m.

DR. F. FOORD CAIGER, F.R.C.P., D.P.H., Chief Medical Officer, Infectious Hospitals Service of the Metropolitan Asylums Board, and Medical Superintendent of the South Western Hospital, Stockwell, has been appointed Emeritus Physician to St. Thomas's Hospital.

THE Carnegie Heroes' Fund trustees have awarded a medallion and an annuity of £100 to Dr. J. Hall Edwards of Birmingham. It will be remembered that Dr. Hall Edwards acquired an intractable affection of the skin in the course of his researches in radiography, and that this necessitated the amputation of his left hand and forearm and four fingers of the right hand.

DR. HENRI HARTMAN of Paris, Hon. F.R.C.S.Eng., professor of clinical surgery and surgeon to the Hôtel-Dieu Hospital, will deliver a lecture at the Medical Society of London, 11, Chandos Street, on inflammatory strictures of the rectum, on Monday evening, February 13th, at 8.30. Professor Hartman will deliver the lecture in English, but the discussion will be in French. The subject is one on which he is a recognized authority, and the lecture will be looked forward to with great interest by his many friends in London.

England and Wales.

THE WELSH NATIONAL MEDICAL SCHOOL.

AT a public meeting held last week in Cardiff the following resolution was adopted:

> That this meeting, convened from all parts of Wales and Monmouthshire, welcomes the establishment of a National Welsh School of Medicine, and pledges itself to endeavour to secure for it adequate financial support, and requests the Lord Mayor to take such steps as he may deem advisable for this purpose.

The sum required is £100,000, which, it is calculated, would yield an annual income of £5,000. Mr. Herbert Lewis, the member for the University, and Parliamentary Secretary of the Board of Education, in a letter read at the meeting stated that if a sum yielding this income were raised the University Grants Committee would make a grant of another £5,000.

It is strange that in a city like Cardiff, the capital of one of the richest districts in the world, it should be necessary to beat the big drum in order to raise so small a sum as £100,000 for a national purpose of such great magnitude and importance as the consolidation of the National Medical School on a sound financial basis. Granted the necessity, the drum was well beaten by the President of the Royal Society and by Sir George Newman.

Sir Charles Sherrington in his address traced the history of medical education and explained the advantages of the clinical unit system. The appeal, he said, was for a national cause—on behalf of a school that should enable the Welsh student to complete his course in Wales, and attract others from beyond the borders of the Principality.

Sir George Newman, chief medical officer to the Ministry of Health, also made a telling speech. After pointing out that the school already had two of the essentials—a general hospital at Cardiff, which, though too small, would temporarily serve as a teaching hospital, and able directors of the clinical units in Professors Kennedy, Sheen, and Ewen Maclean—he said: "The nation has called upon the university and its professors to build a worthy national medical school, but the nation has not provided the wherewithal. The university budgeted in 1921–22 for £16,000, to provide for its medical school, and £12,000 of this came from Government grants to the university. It was estimated, however, some months ago that the irreducible sum for which a national school could be furnished was approximately £25,000. You are therefore some £16,000 behind, and that is why you have an insufficient number of beds, no assistant professors, and inadequate laboratory provision and apparatus." In conclusion Sir George Newman observed that the reputation of Wales in regard to national health was not good; infectious diseases, tuberculosis, cancer, and a great mass of physical impairment, invalidity and incapacity were evils still undefeated. The hope of conquest, he continued, lay in the progress of medicine and medical education. Wales could, if it would, give every child born a fair chance, could equip and train children, and could increase the health and capacity as well as prolong the life of the adult population.

Lord Kenyon, Pro-Chancellor of the University of Wales, read a letter from Sir Wilmot Herringham, medical member of the University Grants Committee, in which he said that if Wales wished to have a medical school at all it would wish it to be a school of which it might feel proud.

LIVERPOOL MEDICAL INSTITUTION.

Rutter Memorial Tablet.

The annual meeting took place on January 26th. Dr. John E. Gemmell presided. The Rutter memorial tablet, which was erected by his sister and nephews, and to the existence of which Mr. Thomas H. Bickerton had drawn attention some years previously, had recently been secured for the institution of which John Rutter was the founder. The tablet of marble, with Latin inscription, occupied a prominent place in the Parish Church of St. Peter. This building is now being demolished, and the Ecclesiastical Commissioners willingly assented to the request of the council of the Institution. Mr. W. Thelwall Thomas undertook to defray the expense of placing the tablet in a conspicuous place in the hall of the building, where it will remain as a striking testimony to the wisdom and foresight of the founder. The President moved a warm expression of thanks to Mr. Thelwall Thomas for the trouble he had taken to have the tablet placed in its present position. Mr. Thomas related briefly the steps that had been taken, and expressed his gratification on the successful accomplishment of the task, which had given him so much pleasure. Mr. Bickerton, unable to be present, sent a letter, which was read by the President; in it he gave some interesting details about the life of the founder and the objects of the Institution when it was established. Mr. F. C. Larkin, treasurer, added remarks of a topical nature: he described the neighbourhood and the site which is occupied by the building, and mentioned the street names, which were of historic interest. The site of the building was formerly that of the house in which Roscoe, one of Liverpool's noted townsmen in those days, was born. The vote of thanks was unanimously accorded to Mr. Thelwall Thomas, and all present regarded the epitaph with its graceful inscription as a distinct addition to the attraction of the entrance hall. The following officers were elected: Dr. John Hill Abram was elected president, Drs. W. Murray Cairns and Ernest E. Glynn as vice-presidents, and Messrs. F. Charles Larkin and George C. E. Simpson were re-elected as treasurer and librarian respectively. The financial statement shows the Institution to be on a thoroughly sound basis. The meeting also resolved that the laws of the Institution should be revised.

MANCHESTER UNIVERSITY ROLL OF HONOUR.

The *Manchester University Roll of Service*,* which has just been published in a handsome volume, includes the names of those past and present members of the University who served with the British or allied forces during the great war. In the general list 3,765 names are printed, while 500 names appear upon the list of those who were killed; with the latter are included short but adequate summaries of their academic and military careers. The distinctions gained were many, and included two Victoria Crosses. The intention of Manchester University in issuing this volume is to erect a memorial to the sacrifice of her sons, and, in particular, of those who fell on the battlefields of three continents. The University looks to the future no less than to the past, for with the memory of their predecessors before them, generations of students yet to come may be animated by the same devotion and self-sacrifice to overcome the inevitable difficulties in the progress of humanity. The names of many medical men appear on the roll of the fallen, while among the fallen student members of the University appear the well known names of Delépine and Donald. The following are, so far as could be ascertained, the names of the medical practitioners who were old Manchester students and fell in the war: K. Atkin, E. N. Cunliffe, R. D. B. Frew, P. S. Green, A. Hilton, G. R. Hitchin, E. Howe, R. J. Jones, E. P. Leahy, S. E. McClatchey, J. B. Mann, C. B. Marshall, T. W. Martin, G. L. Maule, R. N. Porter, W. B. Pritchard, H. H. Proudfoot, K. Robinson, D. Rodger, W. A. Sneath, A. M. Thomson, C. G. Todd, J. T. Waite, W. B. Warrington, and H. D. Willis.

Scotland.

INFLUENZA IN SCOTLAND.

ACCORDING to the latest reports the influenza epidemic continues unabated in Glasgow, and the death rate from it appears to be increasing. The number of deaths from all causes for the week ending January 21st, was 1,116, which is stated to be the highest ever recorded in the city for one week, and represents 54.4 per 1,000 of the estimated population. The number of deaths from respiratory diseases was 611, compared with 326 the preceding week, 189 deaths being attributed to influenza, 272 to pneumonia, and 140 to bronchitis. Influenza is similarly prevalent, according to the *Glasgow Herald*, in Paisley, where for the week ending January 21st the total death rate rose to 36.3 per 1,000, a height which it has not attained since the epidemic of 1918–19. In Edinburgh, on the other hand, it is stated that the epidemic is certainly no worse, and the authorities do not intend to close the schools there; but elsewhere in the east of Scotland, at Cowdenbeath and Bathgate, for instance, the schools have been closed on account of influenza.

* *Manchester University Roll of Service.* Manchester: The University Press; London: Longmans, Green and Co. 1922. (Demy 8vo, pp. xiv + 274. 10s. net.)

Ireland.

IRISH DOCTORS IN THE FREE STATE.

A COMMUNICATION appeared recently in a very prominent position in the *Freeman's Journal* advocating the establishment of an Irish Medical Council under the Irish Free State that would take over in their entirety the functions of the General Medical Council so far as they concerned the medical profession in Ireland. The correspondent of this newspaper seemed, however, to think that the General Medical Council and the Council of the British Medical Association were identical bodies and discharged the same functions. Arising out of the communication in the *Freeman's Journal* there appeared interviews with Surgeon McArdle, Dr. Edward Magennis, President of the Irish Medical Association, and Dr. T. Hennessy, Irish Medical Secretary of the British Medical Association and Medical Secretary of the Irish Medical Committee. The following are extracts from the communications referred to, and are given in their order of publication. Surgeon McArdle, amongst other things, stated:

"The first thing to be done is to secure that medical registration in Ireland should entitle those registered here to have the right of being placed on the English *Register*, and that the Irish Free State should give a reciprocal convenience to men qualified in England who wish to practise in Ireland.

"The high standard of medical education here has been acknowledged by the inspectors from the British Medical Council, and they are satisfied that the examinations are a fair test and well organized. Under these circumstances there should be no difficulty in arranging matters at once.

"It is in the interest of the public, as well as to the advantage of the profession, that these affairs should be arranged without delay, so that, working in harmony with the Executive of the Irish Free State, the profession could aid in settling the location of county hospitals, the system of promotion of medical officers, and the remuneration of those who take service under the new régime.

"There can be no doubt but that new-found liberty will cause a rejuvenescence all round, and our profession should be foremost in taking advantage of the heartening conditions that are sure to prevail."

The Irish Medical Secretary in his letter stated:

"There is amongst all classes of Irish medical practitioners considerable speculations with regard to the changes that may be necessary regarding the government and the regulation of the qualifications of the medical profession in Ireland under the Irish Free State. It is believed the establishment of a statutory medical body for Ireland possessing all the penal powers—and some more—of the present General Medical Council will receive the general support of the Irish medical profession.

"It will be different, however, when it becomes a question of setting up a distinctively Irish body with power to prescribe the curriculum and regulate the qualifications of medical practitioners in Ireland. In these respects the Irish medical schools will be keenly interested. For many years 80 per cent. of newly qualified doctors have been for export—mainly to England. This market, however, is becoming narrower owing to the great increase in recent years of medical students and newly qualified doctors in England. Nevertheless, so far the Irish doctor has had, on the whole, a fair chance in England. It is difficult to say how much, if any, of this was due to the fact that England had a very considerable voice, through the existing General Medical Council, in prescribing the professional attainments of the Irish doctor. The question arises: Will he command the same demand when England has no voice in prescribing his professional qualifications as will happen if an Irish Medical Council is set up with independent powers over medical education in this country?

"It may be said any difficulties in the way of the acceptance of the Irish doctors in England could be got over by agreeing to reciprocity. But Ireland cannot reciprocate, because whilst she exports 80 per cent. of her medical men to England, it is the exception to have an English doctor to set up practice in Ireland.

"I believe what will really happen, if we prefer to have an intensive Irish nationality in medical affairs, is that the Irish medical students intending to practise in England will go to that country to study for their medical diplomas, and thus run no risks. It is in this way the Irish medical schools will be hit, as one small medical school in Ireland would be more than sufficient to train enough of doctors for our Irish requirements. Dominion medical diplomas, though of a very high standard, and equal to those granted, in most respects, in England, are not looked upon in Great Britain with the same favour as the home degrees, and their holders do not as readily find medical employment.

"These are some of the pros and cons that must be thought over when considering the question of establishing an Irish Medical Council. In discussing the matter, however, there is no question of compromising our nationality, as medical science, like all sciences, acknowledges no territorial or national limitations."

Dr. Magennis, President of the Irish Medical Association and a member of the General Medical Council, gave an outline of the functions of the General Medical Council.

In reply to his interviewer, he said that under the new régime he would like to be assured that all these requirements (under the General Medical Council) should still be observed and Irish practitioners abroad suffer no unfair discrimination, and also that the rules enjoined under the head of conduct should still be adhered to, and that in the trial of all penal cases the same procedure be followed. "The big question," Dr. Magennis said, "for all Irish medical men under the new Irish Free State is—Will they be represented in the same way on the General Medical Council, or will they have a statutory body, say, an Irish Medical Council, which will have control of education, registration, and conduct, and be an entirely separate body and independent altogether of the General Medical Council? If we remain as now, an Irish doctor may object in penal cases to be tried by a body mostly composed of Englishmen and Scotchmen. If we have a separate council we must also have a separate Register, and unless some reciprocity be established, a doctor on the Irish Register cannot practise in Great Britain or the Colonies unless he is on the English *Register*, for which he has to pass the necessary qualifying examinations. There are about 2,500 medical men in Ireland, and on that average about 130 register annually in Ireland. Roughly, about 200 qualify in Ireland each year, and about two-thirds of these go to England, Scotland, or the Dominions.

"There is the possibility that a change from present conditions might affect the number of students who qualify in Ireland, and so act detrimentally on the Irish teaching bodies. Some people hold that just now the influx of male and female students in Ireland is abnormal.

"The whole question is a complicated and difficult one, but in so vital a question the Irish Free State may feel assured of the whole-hearted support of the Irish medical profession."

Correspondence.

CERTAIN ASPECTS OF PAIN.

SIR,—While neurologists all over the world, with eyes turned towards St. Andrews, are eagerly awaiting one of the greatest advances in diagnosis that Medicine has witnessed, may they not still be allowed to cherish the belief that Dr. Henry Head has not missed all the elementary facts concerning visceral sensibility? Before reading Sir James Mackenzie's letter some of us had failed to appreciate the complete dearth of accurate observations south of the Tweed, and had credited Dr. Head with recognizing at any rate the need for them. In our ignorance we had come to regard his work as an example of what accurate and painstaking clinical observation can achieve, an example which appeared, moreover, to have been followed by others with not altogether undistinguished results.

Is the cause of science advanced by a dogmatic statement that "pain when it arises in the viscera is due, not to mechanical stimuli, but to a vital process," even when the last five words are printed in italics? When I am informed that "stone in the bladder does not cause pain until the contraction of the emptying bladder is stimulated to severe contraction by the presence of the stone," I am tempted to inquire: When does contraction become severe contraction? and to presume that the answer is: When it becomes painful.

It is a matter for general congratulation that Sir James Mackenzie recognizes the need for further investigations, and that the whole subject is being reviewed at St. Andrews Institute; it is a pity that this review should have been anticipated by a letter so ungenerous to the work of others, and particularly to that of Dr. Head, to whom British Neurology owes so much.—I am, etc.,

E. FARQUHAR BUZZARD.

London, W., Jan. 30th.

PROBLEMS INVOLVED IN THE CONGRESS OF THE SEXES.

SIR,—I hope that nothing in my address to the Oxford Medical Society can be regarded as implying "that gynaecological anatomy and physiology are vague and mediaeval," as is the interpretation likely to be placed upon my remarks, according to the view expressed by Dr. W. Blair Bell in his letter of January 12th.

Dr. Bell's own work is the best refutation of any such suggestion. I did not give his name in my article, since in his volume entitled *The Sex Complex* he does not touch on that particular aspect of the subject with which I was most immediately concerned—namely, the possible influence of the male secretions on the female.

As set forth in his *Principles of Gynaecology*, Dr. Bell thus describes the function of the uterine glands: "The body of the uterus normally secretes a clear, thin, mucinous fluid, which is very slight in quantity, except just before and after menstruation." He then proceeds to deal in detail with the changes involved in the epithelium of the glands during the different stages of the menstrual cycle. These do not differ

in any material respect from the accounts already published by various observers, except in so far as Dr. Bell considers that he has demonstrated the presence of mucin in the gland cells and lumina by the use of a muci-carmine stain. Unfortunately, the use of carmine and cochineal stains in this particular instance is open to serious objection, for consisting, as they do, essentially of carminic acid in combination, it is a hitherto undisputed opinion that they exercise a strong selective staining reaction on tissues containing calcium salts (Bolles Lee, *The Microtomist's Vade Mecum*, eighth edition, pp. 135–6). As Dr. Bell himself points out, the menstrual discharge is exceptionally rich in calcium salts. May it not be that this constituent of the cell content is that responsible for the selective stain, and not the presence of mucin, as Dr. Bell believes? Beiling, by the use of thionin, another stain regarded as having a selective affinity for mucin, failed to record its presence. Clearly, therefore, the matter is still in doubt, and can only be settled by further investigation.

May I add that in connexion with the wider aspect of the subject we want more detailed information in regard to the changes exhibited in the uterine mucosa of the virgin as contrasted with that of the sexually active female, for if there be any foundation for the suggestion that some proportion of the male ejaculate seems to disappear (by absorption?) within the uterus of the sexually active woman, comparison with the uterus of the virgin would serve as a control. I am anxious, too, to know if any description of the uterine mucosa during the lactating period has been published. So far I have failed to find one. I would value any specimens removed at that period.—I am, etc.,

Oxford, Jan. 30th. ARTHUR THOMSON.

MENTAL HOSPITALS.

SIR,—With your permission I desire to say that Dr. Octavia Lewin's letter with the above heading in your last issue does not, in my judgement, present the subject dealt with at all fairly.

The Mental Hospitals Association's suggestion is that certain mental hospitals near general hospitals with medical schools attached thereto should be set aside and used in conjunction with and as part of such hospitals for the treatment of mental ailments, free from any connexion with the lunacy laws. These taken-over mental hospitals would be such as, by reason of their construction and existing medical equipment, could be utilized quickly, and at a minimum of expense from the point of view of conversion. They would be, as the pamphlet of the association says, "additions to the General Hospital"; in fact, psychiatric clinics, part and parcel of the hospital system. Patients would be received with some such safeguards as are set out in Clause 10 of the Ministry of Health (Miscellaneous Provisions) Bill of 1920. They would be discharged, after due notice, on expressing in writing a desire for discharge. It must be obvious that some of these cases will become certifiable during residence, and there will also be those concerning whom, even on admission, a certificate of insanity *could* be written. That, however, is not to say that they will be, or should be, certified after admission and sent to an asylum. To do this would be to defeat the object we have in view. Certification for the asylum need only be adopted in particular instances—for example, where seclusion and restraint become necessary owing to unmanageability, or where a patient, obviously irresponsible, and liable to be dangerous to himself or others, insists on leaving.

The proposition of the association, as is obvious to anyone who has read their pamphlet, is to recommend a means whereby psychiatric clinics can be provided expeditiously and at a minimum of cost. If Dr. Lewin objects to it, her objection logically extends to the principle of the psychiatric clinic, so that such clinic, however established, would be included in her condemnation as providing "stepping-stones to certification"; and the statement that "the treatment will be similar to that given to lunatics"—whatever that means—will equally apply to the psychiatric clinics of the future.

Dr. Lewin shows confusion of thought when she writes of "calling the group of buildings a mental hospital," and of the patient being "still held in the meshes of the lunacy administration." It is proposed to take buildings to be used as clinics (now called mental hospitals) *out of* the lunacy administration. She goes on to say that "the real crying need is for hostels—free from all stigma, from all association with lunacy administration." Substitute "psychiatric clinics" for "hostels," and the sentence describes the proposition of those now seeking a reform. There is no special virtue in the term "hostel"; it does not connote anything definite, or better than what is aimed at. What we require is to secure indoor clinics for early treatment of those cases of the psychoses and psychoneuroses which we see in private practice and at out-patient clinics in psychiatry at those general hospitals where such are already established. These cases are on, or just over, or liable at any time to go over, the borderline.

The clinics would be maintained either by the local authority (in co-operation with the authority of the voluntary hospital) or privately. It is certain that the State will insist—and properly insist, in the judgement of those with experience in these matters—on adequate control and supervision of these places, and such should, I think, be more stringent in respect of places under private auspices. The actualities and potentialities of the cases dealt with will always demand discrimination between them and other cases of illness, as far as protection by the law is concerned. Even the "hostels" that Dr. Lewin lauds would be controlled and supervised if they are to deal with the cases concerned.

Dr. Lewin says: "The pamphlet asks for legislation. None is necessary for hostels without detention." If she means that cases of the kind specified above, which are the ones we wish to benefit, can be dealt with as indoor cases in hostels without legislation, she is wrong. The framing of Clause 10 in the Ministry of Health Bill shows it, and any future legislation in this direction will also show it. In practice any hostel or clinic seeking to deal with the cases in question without legislation will in due course find itself in trouble.—I am, etc.,

Cardiff City Mental Hospital, Cardiff, Jan. 30th. EDWIN GOODALL.

INFLUENZA.

SIR,—May I draw attention to some facts which, taken together, seem significant?

1. Some form of influenza is epidemic every year.

2. The same type rarely persists for more than three or four seasons, and usually disappears in a single season.

3. Sometimes epidemics of unlike types occur in a single year, when the beginning of one may overlap the end of the other. For example, in the summer of 1918 what was known as the "Spanish sickness" appeared. I was at the time in medical charge of troops, of whom 400 went sick in a week, with temperatures up to 104°, rigors, and severe back and head aches, but with no nasal or pulmonary symptoms. Not a man died, and within a few days all had returned to duty. In the autumn of the same year began a tremendous and a more persistent epidemic of a totally different and much graver type. Again there were no marked nasal symptoms, but now the main seat of mischief was the lungs, the deaths from pneumonia being very numerous. This type almost vanished during the depth of the ensuing winter, but broke out in epidemic form, though with lessened prevalence, the following February. Since then sporadic cases have occurred, and now we are witnessing another epidemic, though much less severe, of the same type. It is estimated that since its appearance this, the classic type of influenza—the kind described in the textbooks — has cost the world some 10,000,000 human lives.

4. Epidemics of influenza may be traced back for many centuries, though the accounts grow vague with the lapse of time.

5. Every very lethal epidemic seems to have been of the pulmonary type.

6. Pandemics of this type appear to recur at intervals of about a generation. There was one in the early forties of the last century, and another in 1890, the epidemic of 1890 thus being separated from its predecessor and successor by intervals of nearly fifty and of twenty-eight years respectively.

7. Many of the soldiers and civilians in my care suffered in 1918 from both the Spanish sickness and the pulmonary type which followed; but I have yet to meet a person who has experienced the same type more than once.

8. The 1890 epidemic fell with special severity on elderly people. The young also were affected, but the deaths were numerous among the former.

9. In the 1918 epidemic the young were especially affected, nearly all the elderly exhibiting immunity.

10. It will be found on inquiry that the people who suffered in 1890 escaped infection in 1918. Doubtless there are exceptions, but they are certainly rare. Personally I have met none.

11. It would seem, therefore, that illness and recovery from

each type of influenza confers immunity against subsequent attacks of the same type. In 1890 even elderly people had not antecedently suffered.

12. If the foregoing be correct, it is evident that there are not many different types of influenza, but many distinct diseases which have all been grouped under that one name.

13. Again, if that surmise be correct, we are now witnessing the last, or almost the last, of the present epidemic. It is licking up the last of its victims, and should not reappear for about a generation. Doubtless in the interval it will wander among remote and comparatively inaccessible people, to return as a pandemic when a new generation has arisen and the harvest of the non-immune is ripe and ready for the reaping.—I am, etc.,

Southsea, Jan. 23th. G. ARCHDALL REID.

TREATMENT OF CARCINOMA OF THE CERVIX.

SIR,—It appears that in my paper on the radical abdominal operation for carcinoma of the cervix the figures I gave dealing with the operative mortality rate of my colleague and myself of recent years are not sufficiently clear, although I tried to make them so.

Since the completion of the 100 operations, the ultimate results of which formed the basis of my paper, I have performed a further 120 operations, the same standard of operability being maintained as in the first 100. I have therefore performed Wertheim's operation 220 times. I had 20 operative deaths in the first 100 operations, a mortality rate of 20 per cent., and 16 operative deaths in the subsequent 120 operations, a mortality rate of 13.3 per cent.; or, taking the whole 220 operations, 36 deaths, with a mortality rate of 16.3 per cent. I trust these figures cannot be mistaken. The ultimate results of the last 120 operations I cannot give, since at least five years must elapse after the performance of the last operation of a series before figures dealing with the ultimate results become available. I may add that the figures I gave in the same connexion dealing with the mortality rate of my colleague and myself jointly and of my colleague individually refer to operations performed subsequent to those of our first joint series or of the series with which my paper was principally concerned.

The principle on which I have worked in deciding what cases to operate on is fully set out in the third paragraph of my paper, and I have never deviated from it, although it has involved undertaking many cases in which the chances of ultimate success were poor and the chances of increasing my operative mortality rate great. I have done so because I believe that one success in these desperate cases is worth many failures. Whether I am right in believing that the course I follow is that by which the operation can be made to yield the maximum of good can only be proved by the publication of the figures of other operators, and especially those whose principle of operability and standard of completeness of operation are different from mine.

We gynaecological surgeons are up against the problem of how to treat carcinoma of the cervix so as to bring the greatest good to the greatest number of sufferers, and a consensus of opinion will never be reached until we all lay our cards on the table. I have laid my cards, and I beg those other surgeons who by now must have a large experience of the operation, to lay theirs also in a manner comparable with mine. We shall then be able to talk in real earnest, and I can assure Dr. Spencer and all other gynaecological surgeons that if their results are better than mine I shall have no false shame but shall be round to them within a week to find out how they do it.—I am, etc.,

London, W., Jan. 30th. VICTOR BONNEY.

SIR.—The object of my letter, published in your issue of January 21st, was to point out that the average operative mortality of the radical operation, as practised by experts at the present day, was not 20 per cent., as Dr. Spencer and Mr. McCann state, but a figure much lower. In his last letter Dr. Spencer attempts to check me by dragging the red herring of "operability rate" across the scent, but this won't do.

Dr. Spencer asserts that "if Mr. Bonney has personally performed a second hundred cases and will give his results" he will be happy to quote them. But this is exactly what, up till now, he does not do—hence these tears. If he will only re-read Mr. Bonney's paper carefully he will discover that he, Mr. Bonney, *has* personally performed a second hundred cases on the same standard of operability as his first hundred, and that the mortality of this second hundred was 13 per cent.

We have now arrived at an impasse. Dr. Spencer, founding his belief on German statistics, maintains that the present-day average mortality is 20 per cent. I, from my knowledge of the results of English operators, not only those of "Smith and Jones," know that, when the operation is performed by expert gynaecologists, this mortality is very much lower.

At the risk of yet again irritating Mr. McCann by laughing "at the wrong time," I trust he will not begrudge me just one little sniggle at his *obiter dictum* that "if the disease be found to be irremovable the operation should be abandoned." An expectant world breathlessly awaits the announcement of Mr. McCann's alternative.—I am, etc.,

London, W., Jan. 30th. COMYNS BERKELEY.

DEEP X-RAY THERAPY IN MALIGNANT DISEASE.

SIR,—Dr. Curtis Webb's very interesting and instructive paper upon the above subject should stimulate others to give their views, especially upon the technical and practical side of the question. It is too early in the day for British workers to go further than to say that the results of treatment nowadays are more favourable than those obtained in the past by the older methods. I have only treated twelve cases with the new deep therapy apparatus, and, owing to inability to obtain a gas relay or iontoquantimeter, have been unable to follow out the Erlangen methods in all their details. In most cases the deep therapy treatment has been assisted where possible by the use of radium—for example, in uterine cases radium needles and tubes were used, suitably protected, in doses equal to 150 mg. of radium element for periods of twenty-four hours.

To take the place of the automatic gas relay for regulating the vacuum of the boiling water tube, I have experimented with a mechanical form which is worked by a lever behind the protecting screen, and have finally succeeded in adjusting the mechanism to work regularly for several minutes without interfering with the osmo regulator. By suitable adjustment of the lever a small flame is always kept burning, and since the milliampèremeter is only 2 feet from the operator any hardening of the tube can be corrected almost instantly. As the boiling water tube works erratically unless the water is boiling, the burner has been arranged so that it can be swivelled into a position in which it will raise the water to the required temperature before starting treatment. When this has been done the burner can be turned back again to its normal position, so as to heat the regulator. The tube will sometimes run as long as thirteen minutes without any sign of hardening, a 15-inch spark gap being used. The method of gauging the unit skin dose will no doubt in time be improved upon; the 100 per cent. dose is the amount which will produce erythema of the skin in from five to eight days, and a distinct tanning of the skin in three to four weeks. Errors will always arise with this method of measuring the unit skin dose, as there is the personal factor of the operator and also the idiosyncrasies of the skin of the patient to be allowed for.

Experience over many years has taught me that no two operators obtain exactly the same unit, and as this unit is the foundation from which are calculated the doses given to the parts under treatment, no two results can be the same.

Not being in possession of an iontoquantimeter I had to devise other methods to ensure accuracy in depth dosage. In uterine cases I fix a piece of lead on the seat of the mischief, usually the cervix, and take a pair of plates, thus finding the exact depth and position of the parts to be treated. In the same way I have found it necessary to gauge the dosage given to the areas, and where possible this has been done by fixing Kienbock's strips and pastilles suitably protected in contact with the parts under treatment (for example, the apex of the vagina). Difficulties may sometimes occur where the patient can only be treated in a prone position, and as the boiling water tube can only be used above the couch I have got over this by using a 16-inch Coolidge tube under a canvas stretcher raised to a suitable height, having first marked out the areas for treatment by screening. This arrangement although somewhat awkward tends to greater accuracy, especially with the cross-fire method, and in suitable cases the use of a lead-glass vaginal speculum working at a great distance further increases the efficiency. The great advantage of the Coolidge tube is that if it is worked at 2,5 milliampères with a fan blast for cooling purposes the tube can be entirely enclosed and is constant in action. My best cooling device is an old electric vacuum cleaner connected to the shield by a

long length of large hosepipe. The harmonious hum of this device tends to lull the patient to sleep!

The two long arms of the Coolidge tube are enclosed in thick lead-glass sleeves; these act as a protection to the patient and also prevent the accumulation of dust particles, which endanger the life of the tube by sparking. A further safety device for the tube would be to have the protecting sleeves full of oil. The majority of the work is done at a distance of 50 to 60 cm.; it may be necessary for the treatment to last as long as fifteen hours, which may be spread over two or three days. Damage done so far includes the loss of two 16-inch Coolidge tubes.

The protecting screen is made up of 8 lb. of lead and is fitted with shelves and electric light so that the operator may read and smoke, yet at the same time be alert so as to be able to regulate the working of the apparatus.—I am, etc.,

Newcastle-on-Tyne, Jan. 25th. H. E. GAMLEN.

MALARIAL GLYCOSURIA.

SIR,—Two cases of malarial glycosuria were published by Drs. Castellani and Willmore in the BRITISH MEDICAL JOURNAL for August 20th, 1921, p. 286, and another case was published in the issue of October 22nd, 1921, p. 629, by Dr. Harrison, where it is stated that Castronuovo mentions the condition, but it is not in the textbooks. Dr. Castellani's first case, J. F. S., has been under my care at the Tropical Disease Clinic at Brighton since October, 1920; I sent him to Orpington Hospital, where he remained two months (April 4th to June 3rd, 1921), and where he was seen by Dr. Castellani, who there made the diagnosis.

Before admission the man had symptoms which pointed to a mild degree of Graves's disease—namely, tachycardia, slight exophthalmos, some enlargement of the thyroid, and tremors; this is not brought out in the published notes of the case, though it is stated that the pulse was 120 and he was tremulous. A temporary glycosuria is fairly common in Graves's disease, probably from inhibition of the internal secretion of the pancreas by the thyroid. It would appear possible that the rest, quiet, and freedom from worry whilst in hospital improved his hyperthyroidic condition, and so caused a disappearance of the glycosuria. Dr. Castellani attributes the disappearance of his glycosuria to quinine, yet the man had had plenty of quinine before going to hospital; he has had it since, but continues to have malarial attacks.

Seen after leaving hospital, his pulse was 80, the exophthalmos was very slight, the enlargement of the thyroid had diminished, and the tremor was less marked; since then there has been no definite relapse in this respect. There has been no return of the glycosuria, though the malarial condition shows little improvement.

The condition is so rare that it appears desirable to exclude all other possible diagnoses before making this one, even by such an authority.—I am, etc.,

Hove, Jan. 27th. ALEXANDER ORLEBAR.

TREATMENT OF SQUINT.

SIR,—The case which gave rise to Colonel Henry Smith's novel suggestion (January 7th, p. 13) for the treatment of squint was apparently an ordinary case of severe seventh nerve paralysis. We have all seen such cases:

For the first few months after a severe paralysis of the right seventh the right side of the face is expressionless and slablike, and the mouth droops to the right. After six months or so, if there is some improvement, a tonic overaction of the affected muscles takes place. The right naso-labial furrow is more marked than that on the left, so at the first glance it is not obvious which is the affected side; the distinction is readily made when the patient endeavours to raise the upper lip strongly; in this case the elevation would be greater on the left side.

Colonel Smith tells us that under the electric treatment "after a couple of months he came back with the mouth pulled to the opposite side—that is to say, towards the nerve originally paralysed," and that two years afterwards, "the shortening he had produced had remained permanent."

This late overaction or contracture of the paralysed side, when it occurs, usually does remain permanent, and several explanations have been given of its occurrence, into which it is needless to enter here, but as overaction develops to as marked a degree in those who have not had electrical treatment as in those who have, it is now known that neither faradism nor galvanism have anything to do with it.

Colonel Smith confidently states a sort of constructive hypothetical syllogism in these terms:

The muscle balance of the eye is exactly analogous to the muscle balance of the mouth. If we can alter the Indian banker's mouth permanently by a course of electrical stimulation of the muscle on one side we can similarly alter the muscle balance of the eye. There is no means of getting away from the issue.

I submit that owing to material fallacies no reliable conclusion can be drawn. No English ophthalmologist who has studied the relation of convergence to accommodation and the action of the fusion centre would admit the first categorical statement; and no neurologist would admit that electrical stimulation had any effect on producing overaction of a paralysed muscle.

Fortunately, in his opening statement Colonel Smith says that under the term "squint" he includes "all non-paralytic errors of muscle balance of the eye." It is just for these non-paralytic cases that I think it may be of use, but not for the reasons that he alleges.

I am very grateful to him for his suggestion, and I shall certainly try it in slight heterotropia, but I am doubtful about the permanence of the effect. Probably the make and break of a galvanic current would be less painful and more efficient than faradization.—I am, etc.,

Newcastle-upon-Tyne, Jan. 30th. A. S. PERCIVAL.

THE THYROID AND THE ENDOCRINE SYSTEM.

SIR,—In my lecture on "The position of the thyroid gland in the endocrine system," published in your issue of January 21st, I stated: "Mellanby has suggested treating Graves's disease by cutting off the fat-soluble vitamin from the diet." Professor Mellanby informs me that the suggestion did not emanate from him and that he has not seen any reason for recommending such a line of treatment.

I regret very much making this mistake, for I quite realize that it is annoying to have an ineffective line of treatment attributed to one whose work has always been characterized by thoroughness and care.—I am, etc.,

London, W., Jan. 30th. W. LANGDON BROWN.

CLAYDEN *v.* WOOD-HILL.

SIR,—I am sending you the fifth list of subscriptions to the Wood-Hill Fund, and should be much obliged if you would publish it in your next issue.—I am, etc.,

HAMILTON A. BALLANCE,
Honorary Treasurer.

All Saints Green, Norwich,
January 28th.

Fifth List of Subscriptions.

Amount previously acknowledged, £818 16s. 6d.

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REGISTERED DENTISTS.

SIR,—I write to say that the regulations of the Dental Board have now been approved by the General Medical Council and the Privy Council, and that applications for registration under the Dentists Act, 1921, can be considered, if addressed to "The Registrar of the Dental Board," at this office, on and after January 27th.

My object in writing is to point out that no person should be considered to be a dentist unless he possesses a certificate of registration, and that medical practitioners should be careful to satisfy themselves, before they enter into professional relations with any persons practising dentistry, that such persons have in fact been registered.—I am, etc.,

NORMAN C. KING,
Registrar.

General Medical Council,
44, Hallam Street, London, W.1,
Jan. 25th.

*** An account of the regulations was given in the SUPPLEMENT last week, p. 19.

Medico-Legal.

PARENTAL RIGHTS AND THE MEDICAL EXAMINATION OF SCHOOL CHILDREN.

A DECISION presenting features of both medical and social interest was given in the King's Bench Division on January 26th. A case was stated by the Hove justices and related to the medical examination of school children under Section 122 of the Children Act, 1908, which provides for the medical inspection of the clothing and persons of children attending elementary schools, gives power to cleanse children who are found to be verminous, and imposes a penalty on parents who allow a child to become verminous a second time.

The appellant was the father of a girl aged 12, who was attending an elementary school at Hove. In April, 1921, the girl, presumably at her father's direction, declined to submit to medical examination. In July, 1921, she again refused to be medically examined, and in September when a further medical examination was held she indicated her intention to offer resistance, and the medical examination was not proceeded with. The child was reported to the local education authority for persistent insubordination and they expelled her from the school. The father continued to send his daughter to the school, but she was refused admission. The attendance officer (the respondent) then took out a summons for non-compliance with an attendance order and the magistrates convicted the father, but stated the case for decision by the High Court.

Counsel for appellant argued that this was a method of compulsion which reminded him of the saying, "We shall never have conscription, but we shall all be compelled to become volunteers." The education authority in effect said, "We will not admit your child until she submits to a medical examination; but if you don't send her we will summon you, so the sooner you make her submit the better for you." He submitted that there was nothing in the Education Acts to make medical examination compulsory. There was no suggestion that the child was verminous, and she was not excluded on that ground. There were certain cases which showed that the exclusion of a child might be proper in some circumstances, but there was no statement in the Acts of the grounds on which children might be excluded. He submitted that this child's conduct was not persistent insubordination; if the child committed one or two acts of disobedience, the remedy lay in the ordinary methods of discipline. No attempt here had been made to punish the child or make her obey. The proper course, he submitted, was to carry out the examination, using such force as was reasonably necessary.

Counsel for the respondent said that he placed great reliance on the finding of fact that the father declined to allow the child to submit to examination. He did not suggest that if the child's disobedience was in deference of her father's wishes, the local education authority could expel her and then summon the father, who sent the child to the school gates every day. Here they had a lawful order and the disobedience was incited by the parent. The father knew when he sent his child to the school gates that he was not sending her in circumstances which would make an effective attendance. It was true that the Act contained no specific penalty for refusing medical examination, but submission to medical examination must be regarded as on a par with any other lawful commands which the school authorities might give. If a father persisted in ordering a child to disobey a particular master, the position might be such that they could only exclude the child. This was a reasonable and proper course. A father could not hold up the whole course of school routine sanctioned by Act of Parliament by saying, "I send my child on my own conditions."

Mr. Justice Avory, in giving judgement, said that it had been held in numerous cases that a parent who sent his child to a particular school in circumstances in which he knew the child would be refused admittance, had not caused the child to attend school. Here appellant knew quite well that the child had been excluded on the ground of persistent insubordination. Counsel had suggested that the remedy was for the school authority to exercise disciplinary power, but his lordship thought that that was putting on the authorities a responsibility never intended. It would lead to scenes of violence and disorder in the school, and probably to summonses in the police court for assault. He thought that Section 122 did impose an obligation on the child to submit to examination. If the child refused under her father's direction, the fault of her insubordination was his and he was responsible for her non-attendance. He must send her in such a condition that she could be received by removing his own and her objection to submitting to examination. The appeal accordingly must be dismissed.

Mr. Justice Salter agreed. He thought that Section 122 imposed a duty on children to submit, and on their parents to co-operate. Mr. Justice Roche also agreed.

Experience has shown that the medical examination of school children has been of great benefit to the children, and education authorities have everywhere taken pains to secure that the examinations are conducted with regard for the comfort and susceptibilities of the children. To have admitted that a foolish or faddy parent can be allowed to override the procedure which has received the assent of all classes of the community would have been a step tending to nullify the essential principles of the Act.

Universities and Colleges.

UNIVERSITY OF OXFORD.

Rolleston Memorial Prize, 1922.—The next award of this prize for original research in any subject comprised in the following list—physiology and pathology, animal and vegetable morphology, and anthropology—will be made in Trinity Term, 1922. The value of the prize is now about £100.

No candidate will be eligible (1) who has not either passed the examinations for the B.A. degree or the B.M. degree at Oxford, or for the B.A. degree or the M.B. degree at Cambridge, or been admitted as a candidate for the degree of B.Sc. at Oxford, or as an advanced student for the degree of B.A. at Cambridge; (2) who has exceeded a period of six years from attaining any of these qualifications; (3) who has exceeded ten years from his matriculation. Candidates wishing to compete must forward their names, before March 31st, 1922, to the Registrar, from whom any further particulars may be obtained.

Christopher Welch Scholarship in Biology, 1922.—An examination for the above scholarship will be held at the University Museum, beginning on Monday, July 3rd, 1922, at 9 a.m. Candidates must be undergraduate members of the University, who have not exceeded the twelfth term from their matriculation. They may offer any one of the subjects—animal physiology, botany, zoology—and they must give notice of the subject selected by them to the Registrar of the University not later than March 1st, 1922. They must, further, enter their names, in person, or by letter, at the University Registry, not later than Monday, April 3rd, and must at the same time produce or send to the Registrar of the University evidence of their capacity for original observation and research. A candidate may also submit to the examiners any original work previously done by him.

At a congregation held on January 26th, the degree of Bachelor of Medicine was conferred on G. Cranstoun.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on January 27th the following medical degrees were conferred:

M.B., B.CH.—K. H. Tallerman.
B.CH.—H. L. Willey.

UNIVERSITY OF GLASGOW.

THE Bellahouston gold medals have been awarded to the following, all of whom gained honours for the excellence of their theses for the degree of M.D.: D. K. Adams, T. J. Mackie, N. Morris.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN ordinary Comitia of the Royal College of Physicians of London was held on Thursday, January 26th, at 5 p.m., the President, Sir Norman Moore, being in the chair. The following were admitted to the Membership:

Marjorie Ada Blandy, M.B.Lond., Thomas Knowles Boney, M.D.Lond., Hugh Reginald Dutton, I.M.S., Charles Frederick Terence East, M.B.Oxon., Guy Melville Kendall, M.B.Camb., Guy Austin London, M.B.Adel., James Purdon Martin, M.B., Q.U.Belfast, Thomas Sidney Nelson, M.B.Oxon., Wm. Jenkins Oliver, M.B.Oxon., Noel Olivier Richards, M.D.Lond., Leon Judah Solway, M.B.Toronto.

Licences to practise Physic were granted to the following ninety candidates who had passed the required examinations and conformed to the by-laws and regulations:

A. R. Abdel Razik, *Charlotte K. J. Almond, J. L. Armour, *Marjorie H. S. Auden, *Margarita S. Barfield, F. W. Bekker, P. C. Bhandari, M. Bienenstock, J. T. Blackburn, *Mary H. Y. Blakeston, S. Bloom, M. W. B. Bulman, W. R. Carling, T. H. Cathrall, D. Chamberlain, *Anapie F. M. Christie, *Dorothy J. Collier, M. Critchley, A. M. Deif, J. G. Drew, A. C. D'Souza, M. A. El-Biblawi, A. Epstein, R. A. Fanous, *Betty Fletcher, *Dora J. Fox, N. Gallant, *Laura P. Gibbon, T. J. E. Gittins, *Kate Glyn-Jones, L. D. Gorton, *Doris M. Hammond, B. J. Hancock, R. V. Hudson, B. D. Hughes, J. W. Hulme, F. C. Hunt, *Winifred M. Jenkins, E. M. Jones, R. G. Karn, A. H. Kassim, J. N. Kerr, *Lorna S. King, A. T. L. Kingdon, A. H. Kretchmar, B. L. Laver, H. D. Llewellyn, A. Q. Logan,

*Caroline G. L. McHardy, O. E. J. McOustra, *Frances M. Margerison, F. H. Mather, *Cecily M. E. Maude, G. G. Michell, *Merell P. Middlemore, R. Mikhail, *Iva C. M. Molony, *Rose Moss, W. H. Nettelfield, G. B. Oliva, R. E. Overton, G. E. Peacock, *Ruth E. Pilgrim, *Evelyn V. Pilley, F. L. Rayner, T. R. Rees, *Hilda E. Reynolds, E. H. Richards, H. R. Rishworth, *Dorothy S. Russell, *Olive M. Salmon, *Effie F. A. Samter, S. Sandler, C. D. Shapland, *Vera E. Shaw, K. E. Shelishear, *Creina Shepherd, C. J. Slim, L. J. Soutter, *Eleanor C. E. Stone, L. W. Studdy, S. Suvansa, R. S. Swindell, W. Thomas, D. D. C. Thomson, H. Tothill, B. G. Watson, E. H. Weatherall, A. D. Wright, W. A. Young.

* Under the Medical Act, 1876.

Diplomas in the subjects indicated were granted jointly with the Royal College of Surgeons to the following candidates:

PUBLIC HEALTH.—J. Ashforth, C. F. Chesney, Elsie E. Cowperthwaite, A. Dasgupta, H. E lis. R. Govan, W. A. Hawes, T. F. Kennedy, Evelyn C. McD. McGregor, J. R. Mitchell, M.C., C. W. Narbeth, A. K. H. Pollock, J. L. Priston, G. V. S. Rodriguez, G. W. R. Rudkin, G. R. A. de M. Rudolf, Elizabeth D. Russell, C. Ryles, P. N. Seth, C. R. Smith, J. A. B. Snell, A. T. Stanton, W. Tarr, N. L. Varma.

OPHTHALMIC MEDICINE AND SURGERY.—T. Ahmed, R. N. Ajinkya, H. W. Beedham, C. F. Eminson, P. J. Kolapore, A. L. North, C. H. St. John, F. R. B. Skrimshire, S. P. Sykes, T. H. Vickers, H. S. Vivian.

PSYCHOLOGICAL MEDICINE.—J. S. Annandale, M. A. Cholmeley, V. L. Connolly, G. de H. Dawson, Marjorie E. Franklin, J. K. C. Laing, J. MacInnes, J. E. Martin, H. F. Maudsley, J. F. Penson, J. F. Powell, E. S. Rose, G. T. Walker, Marguerite Wilson, H. Yellowlees.

Dr. R. Hutchison, Dr. A. Whitfield, Dr. E. Goodall, and Dr. E. F. Buzzard were elected councillors in place of Dr. H. Head, Dr. J. W. Carr, Dr. G. F. Still, and Sir Maurice Craig.

Communications were received from, among others: (1) The Secretary of the Royal College of Surgeons, reporting proceedings of the Council of that College. (2) Dr. Philip D. Turner, dated August 8th, 1921, asking for restoration of the Membership, which he resigned in 1899. This was agreed. (3) Dr. Philip H. Wells, asking leave to resign the Membership, which he took in October last. This was accorded. (4) The Chairman of a Committee for the formation of a Canadian College of Physicians and Surgeons, asking the opinion of the College on the question of affiliating such a college with the Royal Colleges of Physicians and Surgeons in England.

The President announced that he had appointed Dr. Arnold Chaplin to deliver the Harveian oration this year, Sir Maurice Craig to deliver the Bradshaw lecture this year, Dr. J. B. Christopherson as representative of the College on a section devoted to tropical diseases in connexion with the British Empire Exhibition, 1923, and that the Council had appointed Dr. W. G. Savage to deliver the Milroy lectures in 1925. On the nomination of the Council Sir Francis Champneys was appointed a representative of the College on the Central Midwives Board. The President and Dr. Henry Head were reappointed representatives on the Conjoint Board of Scientific Societies. The licence of the College, withdrawn in January, 1918, was restored to Bertie Cecil Eskell. A report was received from the Committee of Management of the Conjoint Examining Board in England, and adopted.

After some formal business relating to College matters the President dissolved the comitia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MR. A. G. TIMBRELL FISHER, M.B., F.R.C.S., surgeon to the Seamen's Hospital, Greenwich, and a member of the research staff of the Medical Research Council, will give a Hunterian Lecture on Wednesday, February 8th, at 5 p.m. The lecture will describe a research into the pathology and etiology of osteo-arthritis, with observations upon the principles underlying its treatment. It will be illustrated by lantern slides and drawings. On Friday, February 10th, at 5 p.m., Mr. C. A. Pannett, M.D., F.R.C.S., assistant director of the Surgical Unit, St. Mary's Hospital, will give a Hunterian Lecture on hydronephrosis. Mr. Zachary Cope, M.S., F.R.C.S., will give an Arris and Gale Lecture on the nerve supply of the parietal peritoneum and the supra-peritoneal tissues, with remarks on its clinical significance, on Monday, February 13th, at 5 p.m. On Wednesday, February 15th, at 5 p.m., Dr. F. W. Edridge-Green, C.B.E., F.R.C.S., will deliver an Arris and Gale Lecture on new researches in colour vision, which will be illustrated by lantern slides showing pictures painted by colour-blind people. Professor Swale Vincent, M.D., will give an Arris and Gale Lecture on Friday, February 17th, at 5 p.m., on a critical examination of current views of internal secretion.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examination indicated:

FINAL EXAMINATION.—*Medicine:* C. W. de Villiers-Pritchard, M. G. L. Lucas, W. M. Reid, F. P. Lisboa-Pinto, H. G. F. Cubitt. *Surgery:* M. G. L. Lucas, W. M. Reid, C. T. Williams, Isobel Reid, S. Ho Asjoe. *Midwifery:* W. O. Rodrigo, C. W. de Villiers-Pritchard, M. G. L. Lucas, C. T. Williams, Isobel Reid, J. R. Colvin, H. G. F. Cubitt, S. Ho Asjoe, Agnes T. Martin, D. R. Nicol. *Medical Jurisprudence:* H. G. Triay, P. S. H. Masters, W. Paris, R. L. A. Kitchen, C. Siung, T. K. Maclachlan, Annie F. Perry, C. W. de Villiers-Pritchard.

The following candidates, having passed the final examination, were admitted L.R.C.P.E., L.R.C.S.E., L.R.F.P. and S.G.:

J. B. Hendry, I. F. McAsh, Enid A. Williams, D. Ciantar, R. Levey, E. J. Allan, S. Sieff, N. Kretzmar, L. E. Murray, S. Sack, W. T. Davie, G. McCoull, Alexandra M. Limont, G. H. Dobbin, J. Readdie, J. A. Nel, A. MacPherson, J. H. Dobbin, A. M. Samarasinghe, A. S. Wickremesinghe, Jamima M. McK. Calder, J. R. Williams, A. R. Lambie, P. Madan, J. R. McCubbing, M. S. Hassen, E. Spence, J. L. L. Jones.

Medical News.

SIR JOHN BLAND-SUTTON will deliver an Emeritus lecture at the Middlesex Hospital Medical School on Tuesday, February 7th, at 3 p.m. The subject of the lecture will be "The choroid plexuses of the brain and psammomas."

SIR D'ARCY POWER will give a lecture on "The Evolution of Surgery" before the Royal British Nurses' Association to-day (Saturday, February 4th), at 3 p.m., at 194, Queen's Gate, S.W.7. The chair will be taken by Dr. A. J. Rice-Oxley, C.B.E., Mayor of Kensington.

SIR ROBERT JONES has accepted an invitation to become President of the Association of Certificated Blind Masseurs, which has its office at 224, Great Portland Street, London, W.1.

A POST-GRADUATE lecture will be given at the St. James's Hospital, Ouseley Road, Balham, on Tuesday, February 7th, at 4.30 p.m., on the subject of "Some aspects of infant feeding."

CAPTAIN SIR ARTHUR CLARKE, an Elder Brother of the Trinity House, formerly deputy-chairman of the Seamen's Hospital Society, has been elected chairman of that corporation in succession to the late Sir Percival Alleyn Nairne. Captain H. B. Hooper, R.I.M., has been appointed deputy-chairman.

DR. WILLIAM SHAW has been elected chairman of the Larne Urban Council for the year 1922; he has been a member of the council for thirteen years, and twice its vice-chairman.

THE fifth Silvanus Thompson Memorial Lecture will be delivered by Sir Oliver J. Lodge, F.R.S., at a special meeting of the Röntgen Society to be held at the Institution of Electrical Engineers on Tuesday, March 21st.

AT a sessional meeting of the Royal Sanitary Institute to be held at 90, Buckingham Palace Road, S.W.1, on February 14th, a discussion will be opened by Dr. W. M. Willoughby, M.O.H. Port of London, on the administrative measures necessary in regard to the slaughtering of animals and the storage and transport of meat in connexion with the report issued by the Ministry of Health. A sessional meeting of the Institute will be held in the Guildhall, Norwich, on February 17th, when Dr. G. L. Leggat will open a discussion on the carrier problem in disease.

A SERIES of eight lectures under the auspices of the People's League of Health will be delivered at the Royal Society of Arts, John Street, Adelphi, on the subject of "The mind and what we ought to know about it." Four lectures will be given in February and four in March, the first lecture being on Monday, February 6th, at 6 p.m., when Dr. Bernard Hart will discuss "Primitive instinct." Subsequent lecturers include Dr. R. G. Cole, Dr. R. S. Rows, Sir Maurice Craig, Sir Robert Armstrong Jones, and Sir Frederick Mott.

THE late Lord Mount Stephen, who died in November last, has by his will bequeathed £2,000 to the Victoria Hospital, Montreal, which he founded, and £5,000 to his friend Sir James Reid, M.D. As already announced, the residue of his property, after paying other bequests and annuities, has been left to King Edward's Hospital Fund; it is estimated that the residue will amount to about £750,000.

DR. R. J. SMITH, Dr. M. F. CAHILL, and Dr. H. DUGUID, all of Gray's Inn, have been called to the Bar.

THE executors of the late Mr. Hermann Woolley, for many years treasurer of Manchester University, have given a donation of £1,000 towards the endowment of a lectureship in pharmaceutics in the University.

IN the week ending January 28th there was a decrease of 123 in the number of deaths in London from influenza, the numbers being 320 as against 443 in the previous week. In the 105 great towns of England and Wales there was a small increase, 1,450 as against 1,433. In the case of the ninety-six great towns the figures were 1,419, as against 1,404 in the week ending January 21st. In several of the great towns, mainly in the north, there were increases. In Birmingham the deaths from influenza were 57 against 42, Bristol 53 against 37, Liverpool 25 against 14, Reading 20 against 7, Brighton 34 against 29, Southampton 9 against 6, Cambridge 9 against 4, Norwich 15 against 9, Chester 9 against 1, Wallasey 7 against 3, Rochdale 21 against 6, Hull 60 against 45, Sunderland 78 against 40, South Shields 19 against 10, Gateshead 52 against 42, Cardiff 13 against 7. In Newcastle-on-Tyne there was a decrease, 74 against 82, as was also the case in Glasgow, where the figures were 183 as against 202. In Edinburgh the figures showed a substantial increase, being 116 as against 72 in the week ending January 21st. It seems probable that this last week records the maximum mortality of this wave, and that in the present week a decline will be found to have occurred.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.

2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.

3. MEDICAL SECRETARY, *Mediseeva, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

DR. J. L. RENTOUL (Belfast) writes in reply to "Paroxysm" (January 21st): Some cases of asthma do well on tuberculin, but it should not be used in all cases. Cases that have resisted other forms of treatment, more especially autogenous vaccines of *M. catarrhalis* and streptococci mixed, emaciated cases, those with a personal or family history of tubercle, should be tried with tuberculin. The best preparation, in my judgement, is P.T.O. Begin with 1/1000 of a cubic centimetre—that is, 0.001. The easiest way to get at this is: To 9 c.cm. saline add 1 c.cm. P.T.O. Of this inject 0.01 c.cm. Allen and Hanburys or the Medical Supply Association supply all-glass 1 c.cm. syringes graduated to 1/100 c.cm. for 6s. The dose should be given once a week and gradually increased—that is, 0.01, 0.02, 0.03, etc. I have never seen any untoward effects. If at any time there is a reaction the dose causing the reaction should be repeated. Needless to say, any case showing active tuberculosis should be treated with caution. Should "Paroxysm" wish to ask any other questions, if he writes to me I will be very pleased to help if I can.

INCOME TAX.

"M. A. H.," a medical woman, was appointed Assistant M.O.H. in May, 1921. Can she average her income received during her training at college, and is she entitled to an allowance for dependant relatives?

*** No; her present employment is a different source of income, and cannot be averaged with her former income. As the father has an income of £97 10s., he is excluded from the allowance; if, in fact, the mother is dependent on "M. A. H.," the allowance of £25 seems to apply. The amount of any loans or interest thereon cannot, by express prohibition, be allowed. We consider she can claim as necessary expenses such sums as are laid out (in whatever form) to obtain literature necessary to maintain her standard of medical knowledge.

LETTERS, NOTES, ETC.

"NEMO" offers to medical society or library (if willing to pay carriage) a series of about fifty volumes of the New Sydenham Society's publications in good condition—valuable for reference; also thirty volumes of *Transactions* of the Obstetrical Society. Apply by letter only to 82, Wimpole Street, W.1.

THE Librarian has received a copy of Dr. Batty Shaw's *Organotherapy*, asked for last week, from Dr. H. Downes of Ilminster, to whom the Association is much indebted.

AN EMERGENCY METHOD IN PRESBYOPIA AND HYPERMETROPIA.

DR. AGNES ESTCOURT-OSWALD writes: May I say that in my memorandum on this subject, printed in your last issue (p. 140), the words "an excellent emergency substitute for a convex lens" were not meant to suggest that any magnification was produced.

UNCONSCIOUS HUMOUR.

"C. K." writes: You commented recently on unconscious humour as displayed in *Punch's Almanack*. I have come across a similar display which seems really too good to keep to one's self. It occurs in a transatlantic medical journal, in an article by a dentist commenting on one of the papers published in the journal. It is the language used which somehow tickles one's sense of humour. It recalls the effusions of Jeff Peters, Andy Tucker, and their friends, of whom we have all, I hope, been reading in the pages of O. Henry. Jeff Peters, it may be remembered, was "all aflame and crammed inside with an assortment of words and phrases that have got to have an exodus."

Let me give a sample first. Mr. Sanderson Pratt is defending his friend, Idaho Green, from the aspersions of a lady:

"Cut him out," says she. "He's no gentleman." "Why ma'am," says I, "he's a plain incumbent of the mountains, with asperities and the usual failings of a spendthrift and liar, but I never on the most momentous occasion had the heart to deny that he was a gentleman. It may be that in haberdashery, and the sense of arrogance and display, Idaho offends the eye, but inside, ma'am, I've found him impervious to the lower grades of crime and obesity. After nine years of Idaho's society, Mrs. Sampson," I winds up, "I should hate to impute him, and I should hate to see him imputed."

"It's right plausible of you, Mr. Pratt," says Mrs. Sampson, "to take up the curmudgeons in your friend's behalf, but it don't alter the fact that he has made proposals to me sufficiently obnoxious to ruffle the ignominy of any lady."

Or this, where Mack and Andy are discussing the fair sex:

"One evening Mack spoke up and asked me if I was much apprised in the habits and policies of women folks. 'Why, yes,' says I, in a tone of voice. 'I know 'em from Alfred to Omaha. The feminine nature and similitude,' says I, 'is as plain to my sight as the Rocky Mountains. I'm on to all their little side-steps and discrepancies.' 'I tell you, Andy,' says Mack, with a kind of sigh, 'I never had the least amount of intersection with their predispositions. Maybe I might have had a proneness in respect to their vicinity, but I never took the time. I never seemed to get my ratiocinations equipped with the sentiments usually depicted towards the sect.'"

"'They're an adverse study,' says I, 'and adapted to points of view. Although they vary in rationale, I have found 'em quite often obviously differing from each other in divergencies of contrast.'"

This, of course, is burlesque, but now hear our dentist:

"This is an excellent monograph upon a vast and live subject. . . . One cannot but admire the versatility of the writer upon the various phases which constitute the present status of the teeth and their function. While there is little to be added in the way of general information on this subject, I feel, however, that the question of 'pulpless teeth' may, without redundancy, be more fully elaborated upon.

"It should be pointed out that carious pulps in teeth and teeth the pulps of which have been removed with various degrees of follow-up root filling are potentially infectious is a substantially established fact, while on the other hand no scientific proof of the innocuousness of such teeth under any circumstances has yet been demonstrated.

"The hysteria that followed the revelations of dento-apical pathology in the form of indiscriminate extractions has been vitiated, and I daresay offset by equally radical and more dangerous claims. . . .

"It is generally conceded by conservative well-informed practitioners that none but properly and completely filled root canals *that are free from peri-apical pathology* and, under favourable conditions of general health, are acceptable. . . . Bearing these facts in mind is it not far more radical to stay the hand that would remove a known focus of disease even though only a moderate percentage may yield results, than to wait until we may demonstrate the septic endocarditis to admit the pathogenesis of devital teeth?

"The importance of teeth in digestion should be a watchword, *always remembering, however, provided that* their usefulness is not offset by the damage that they may cause the possessor whom they would benefit."

This runs Jeff Peters very close, and I heartily wish that writers in the medical journals on this side of the Atlantic would all study and adopt this style; it would brighten things for the readers enormously.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 28, 29, 32, and 33 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 30 and 31.

THE following vacant appointments of certifying factory surgeons are announced: Cardiff (Glamorgan), Keighley (Yorks, West Riding), Market Bosworth (Leicester), Wadebridge (Cornwall).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line	0	1	6
Whole single column (three columns to page) ...	7	10	0
Half single column	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.